

# Equinox 10.1

## User Manual

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# Chapter 1. Licence Terms and Copyright

## 1.1. Copyright

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Correspondence should be addressed to:

Esko Software BVBA  
Kortrijksesteenweg 1095  
B – 9051 Gent  
[info.eur@esko.com](mailto:info.eur@esko.com)

## 1.2. Equinox Licensing

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The Equinox technology is available in Color Engine Pilot, Adobe Photoshop (as a plug-in), ArtPro, PackEdge and Automation Engine.

Licenses are activated through the EskoArtwork License Manager, either:

- on a license server (using the Server License Manager),
- on the computer where your EskoArtwork application is running (using the Local License Manager).

For more information about licensing, see the Server License Manager and / or Local License Manager documentation.

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**Note:**

You need the “color engine link” license to link the Equinox plug-in, ArtPro and PackEdge to the Color Engine database of color settings.

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## Chapter 2. Equinox Setup

### 2.1. General Setup (If You Don't Have an Automation Engine Server)

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If you don't have an Automation Engine server, you should use your Color Engine Pilot's color settings.

All of your color settings (ink books, color strategies...) are located in a shared folder called "bg\_data\_cms\_v010", created when installing the Color Engine Pilot.

You can find this folder under C:/Esko if you have installed the Color Engine Pilot at the default location.

bg\_data\_cms\_v010 has two subfolders:

- r (read), that has all the default settings,
- w (write) where all your custom settings are saved.

This folder **must be available** on all machines running Equinox software.

- On Macintosh machines (for ArtPro and the Photoshop plug-in), **mount** it using the **smb** protocol.

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**Note:**

If you restart your machine, you will need to mount this folder again.

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- On Windows machines (for PackEdge and the Photoshop plug-in), add it as a **network place** or a **network drive**.

### 2.2. Setup in ArtPro

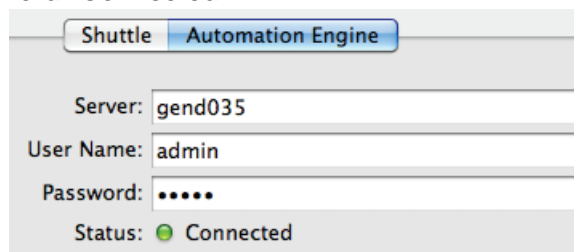
---

#### 2.2.1 If you are connecting to an Automation Engine server

1. Go to ArtPro/Preferences... or use Command + K.
2. Go to the Servers tab and click "Automation Engine".
3. Fill in your Automation Engine Server's name or IP address.

4. Fill in the User Name and Password you use to connect to this server.

If the connection is successful, you will see a green dot and the word “Connected”.



5. In the Color tab of the Preferences, choose “Automation Engine” in the “Load Color Engine Ink Books From” list. ArtPro will use your Automation Engine server’s bg\_data\_cms\_v010 folder.
6. Select the “Load Color Engine Ink Books” option.
7. If you want an ink book to be loaded by default when adding a separation from a Color Engine Ink Book, select it in the “Preferred Color Engine Ink Book” list (see the ArtPro manual for more information about ink books).
8. Click OK.

### 2.2.2 If you are not connecting to an Automation Engine server

1. Go to ArtPro/Preferences... or use Command + K.
2. In the Color tab, choose Browse... in the “Load Color Engine Ink Books From” list.
3. Browse to the “bg\_data\_cms\_v010” folder you mounted earlier (see 2.1. General Setup (If You Don’t Have an Automation Engine Server) on page 8).
4. Select the “Load Color Engine Ink Books” option.
5. If you want an ink book to be loaded by default when adding a separation from a Color Engine Ink Book, select it in the “Preferred Color Engine Ink Book” list (see the ArtPro manual for more information about ink books).
6. Click OK.

## 2.3. Setup in PackEdge

---

### 2.3.1 If you are connecting to an Automation Engine server

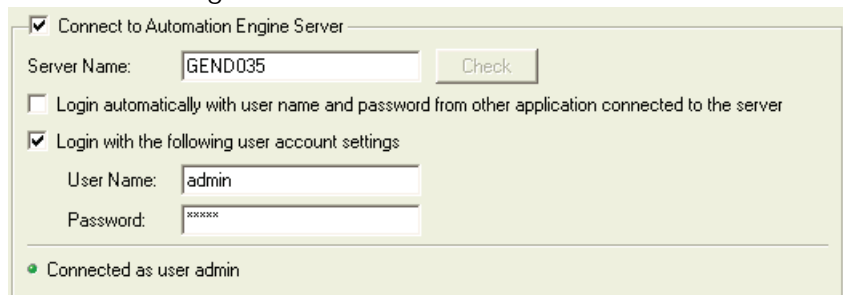
1. Go to Edit/Preferences... or use Ctrl + Alt + Shift + P.
2. Go to the Servers&Resources tab and select “Connect to Automation Engine Server”.

3. Enter your Automation Engine Server Name and click “Check”.

You should see a message saying the server is up and running.

4. Select “Login with the following user account settings”, and fill in the User Name and Password you use to connect to this server.

If the connection is successful, you will see a green dot and the message “Connected as user ...”.



☒ Connect to Automation Engine Server

Server Name:

☐ Login automatically with user name and password from other application connected to the server

☒ Login with the following user account settings

User Name:

Password:

☒ Connected as user admin

5. In “Data Resources”, choose “As defined on the Automation Engine server”.

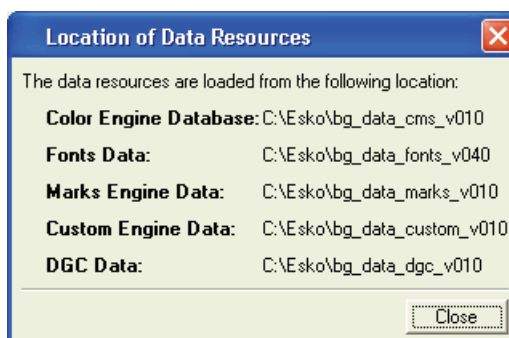
PackEdge will use your Automation Engine server’s bg\_data\_cms\_v010 folder.

6. Click OK and restart PackEdge.

### 2.3.2 If you are not connecting to an Automation Engine server

1. Go to Edit/Preferences... or use Ctrl + Alt + Shift + P.
2. Go to the Servers&Resources tab and make sure “Connect to Automation Engine Server” is NOT selected.
3. In “Data Resources”, define where the “bg\_data\_cms\_v010” folder is:
  - if PackEdge and the Color Engine Pilot are installed on different computers, select “From share on remote computer”, and enter the name of the computer where the Color Engine Pilot is installed.
  - if PackEdge and the Color Engine Pilot are installed on the same computer, select “Use from local system”.

4. To check where the “bg\_data\_cms\_v010” folder you selected is, you can click the “Show Location of Data Resources...” button.



5. Click OK and restart PackEdge.

## 2.4. Setup for the Photoshop Plug-in

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### 2.4.1 Using the Photoshop Plug-in on a 64-bit System

The Equinox plug-in runs only in 32-bit mode.

On a 64-bit system, your copy of Photoshop may run in 32 or 64-bit mode. You need to make sure it runs in 32-bit mode.

- **On Mac**

This only applies when running Photoshop CS5 on Mac 10.5 or later.

If you have an older (supported) version of Photoshop and / or of Mac OS X, you don't need to do anything special.

To run Photoshop in 32-bit mode:

1. In the Finder, right-click your Adobe Photoshop CS5 application and select “Get Info”.

2. In the Info panel, select “Open in 32-bit mode”.



3. Close the Info panel.

When you launch Photoshop, it will be running in 32-bit mode.

- **On Windows**

This only applies when running Photoshop CS4 or CS5 on a 64-bit Windows 7 system.

If you have an older (supported) version of Photoshop and / or of Windows (or a 32-bit Windows 7), you don't need to do anything special.

When installing Photoshop on a 64-bit Windows 7 system, both a 32-bit and a 64-bit copy are installed.

Make sure you use the **32-bit copy** with the Equinox plug-in. You can find it in “C:/Program Files x86/Adobe/Photoshop CS4” or “C:/Program Files x86/Adobe/Photoshop CS5”.



### 2.4.2 Setup in the EskoArtwork Setup Plug-in

1. In Photoshop, go to File/Automate/EskoArtwork Setup... The EskoArtwork Setup dialog will open.

**EskoArtwork Setup**

**Network License Setup:**  
You can optionally provide the name or IP address of a license server. Licenses will still be checked locally if not found on the server.

License Server:  **Apply**

Fill in the name or IP address of the computer that runs the Network License Service.

Installed Plug-ins: ☒ Equinox v10.0.19  
Select the plug-ins that can request network licenses.

**Color settings folder:**  
/Users/Shared/EskoArtwork/ColorEngine/bg\_data\_cms\_v010/  
✓ OK

☐ **Link to Color Engine**  
This option can be used to make the Photoshop plugins use custom color settings that are managed by the Color Engine Pilot.

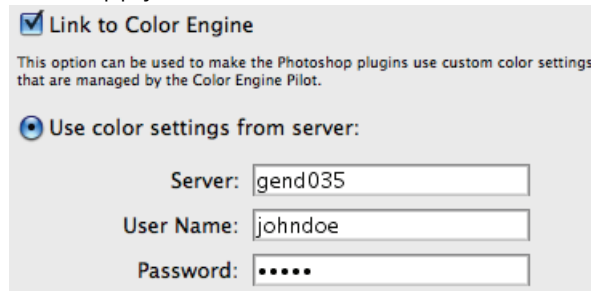
☒ **Use color settings from server:**  
Server:   
User Name:   
Password:   
**Apply**

☐ **Use custom color settings folder** **Choose...**

**Cancel** **OK**

2. If your Equinox plug-in is licensed through a License Server, enter its name or IP address in “License Server”, and click the “Apply” button.
3. In “Installed Plug-ins”, make sure that “Equinox” is checked.
4. If you have a “color engine link” license, select “Link to Color Engine”.
5. If you are connecting to an Automation Engine server:
  - select “Use color settings from server”,
  - fill in your Automation Engine Server’s name or IP address,
  - fill in the User Name and Password you use to connect to

this server,  
- click the Apply button.



You should see a green tick  under “Color settings folder”.

6. If you are NOT connecting to an Automation Engine server:
  - select “Use custom color settings folder”,
  - click the Choose... button and browse to the bg\_data\_cms\_v010 folder you mounted earlier (see 2.1. General Setup (If You Don't Have an Automation Engine Server) on page 8).

You should see a green tick  under “Color settings folder”.

7. Click OK.

Depending on your settings, Equinox will use a different Color settings folder. It will use:

- your server's “bg\_data\_cms\_v010” folder if you are connecting to an Automation Engine server,
- the “bg\_data\_cms\_v010” you mounted and browsed to if you are not connecting to an Automation Engine server,
- a local color settings folder if you do not have a Color Engine Link license.



## Chapter 3. Equinox in Color Engine Pilot

You can create Equinox color strategies in Color Engine Pilot. These color strategies contain color management settings to be used in Equinox conversions.

You can use them in Automation Engine, ArtPro, PackEdge and the Equinox plug-in for Photoshop, to convert CMYK, RGB or spot color files to CMYKOGB.

### 3.1. Creating an Equinox Color Strategy

1. In the Color Engine Pilot pane, click “Color Strategies”.
2. Right-click “Equinox” and select “New”.
3. In the dialog that opens, select an Input Profile and an Output Profile.

You can:

- Select your press’s multicolor profile as Input and Output Profile (most frequent case).

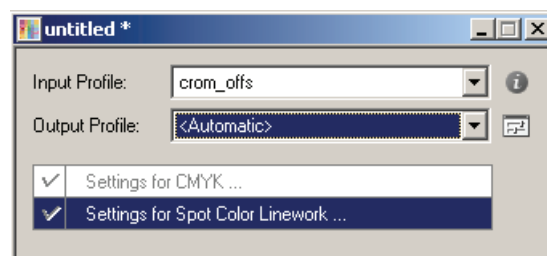
See 3.2.1 When Using the Same Input and Output Profile on page 17.



- Select an ISO profile (for example “ISOcoated\_v2\_eci.icc”) as Input Profile and your press’s multicolor profile as Output Profile (if you have originally printed your file on an ISO standard press).



See 3.2.2 When Using Different Input and Output Profiles on page 18.

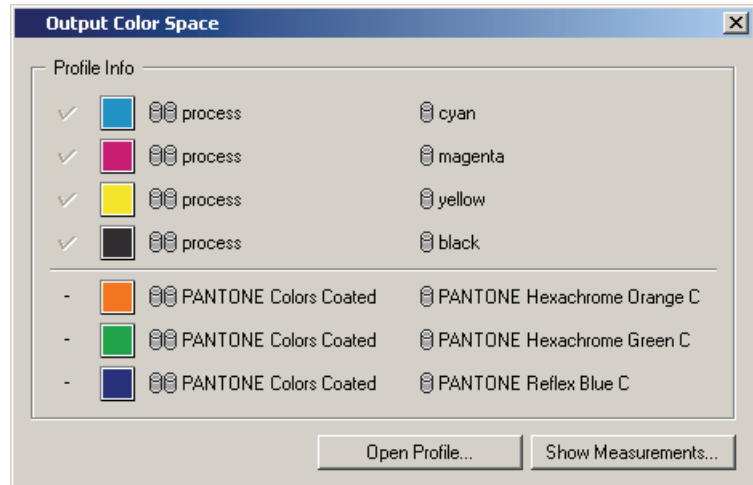
**Note:**

By default, the Output Profile is set to <Automatic>. This means that the input profile will also be used as output profile, so CMYK colors don’t need to be converted.



**Note:** To view information about the input/output profile (inks it contains, measurements...), click  or .

4. If you have chosen a multi-channel Esko profile as output profile but you don't want to use some of its RGB/OGB inks, click  then click the RGB/OGB ink you don't want to use so the  turn into a - .



5. Double-click "Settings for CMYK..." to use an Equinox device link or fill in CMYK conversion settings.  
See 3.2. Settings for CMYK on page 17.
6. Double-click "Settings for Spot Color Linework..." to fill in your spot color conversion settings.  
See 3.3. Settings for Spot Color Linework on page 20.
7. When you are finished creating your Equinox color strategy, go to File/Save or use **Ctrl+S**.

## 3.2. Settings for CMYK

You can fill in different settings depending on the Input Profile and Output Profile you have chosen.

### 3.2.1 When Using the Same Input and Output Profile



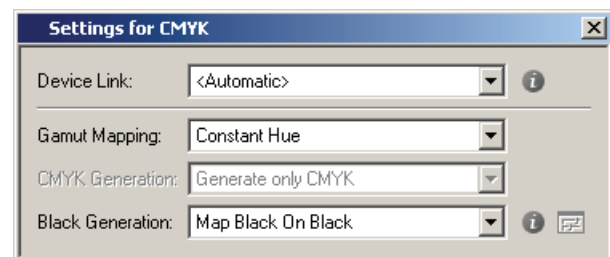
Process colors are not converted but you can choose to use an Equinox device link:

1. Click “Convert CMYK” to be able to select a Device Link.
2. Choose a Device Link for the input / output profile.

You can use Equinox Device Links here (when the input / output profile you selected is the same as the press profile the Equinox Device Link was made for).

For more information about Equinox Device Links, see 6.7. Creating an Equinox Device Link on page 81.

### 3.2.2 When Using Different Input and Output Profiles



- *Device Link*

This list contains all the Color Engine Pilot device links using the selected input and output links. Those are not Equinox device links but proofing device links. Either:

- choose an existing device link in the list (this makes the rest of the settings unavailable).
- choose <Automatic> and create a custom (but limited) device link using the rest of the settings.

---

**Note:**

The color accuracy is higher when using an existing device link.

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- *Gamut Mapping*

Choose either:

- Closest Color (Classic): out-of-gamut colors are mapped to the closest color on the border of the destination profile’s gamut. The distance is calculated in CIE Lab Delta E 76. This might introduce a hue shift.
- Constant Hue: out-of-gamut colors are mapped to a color on the border of the destination profile’s gamut that has the same hue. This option tries to keep the hue when performing gamut mapping.

- *CMYK Generation*

Use this option to define how to simulate the CMYK of the source profile using the destination profile.

If you are working with an Esko multi-color profile as destination, you can decide whether you want to use the full color gamut (5, 6 or 7 colors) to simulate the source CMYK, or limit the output inks to CMYK.

- Generate no CMYK means you will use the full color gamut.
- Generate only CMYK means that, even though you are specifying a multi-color profile, you would like the CMYK of the source profile to be simulated with CMYK only. Spot colors will still be converted using the full gamut.

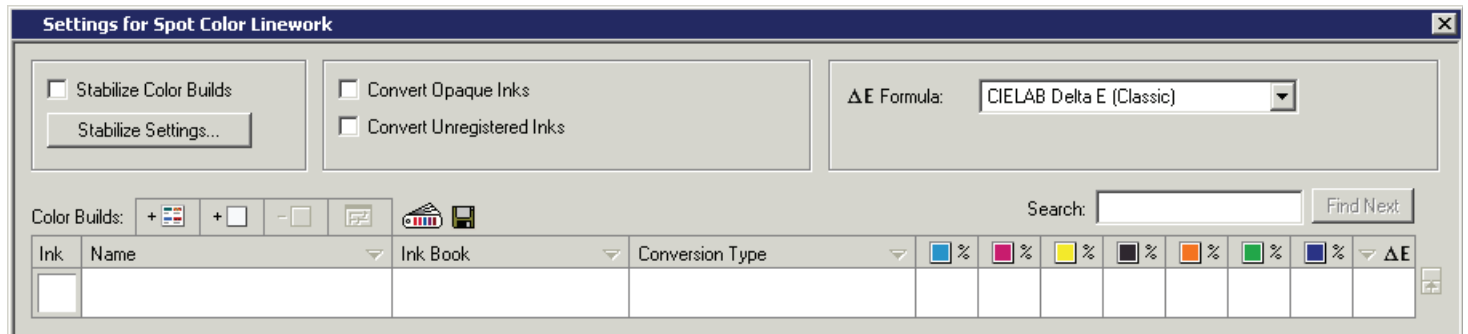
- *Black Generation*

Choose a black generation mode.

- Minimal Black: this generates the lowest possible amount of black, so black is used only in the shadows.
- No Black Mapping: this uses the same amount of black in the target as in the source profile, wherever possible. This keeps the general level of black (e.g. skeleton black), but black objects may contain some CMY after conversion.
- Map Black on Black: this converts black separately from CMY, and maps the source black channel onto the destination black channel. This means that objects that are black in the source profile will still be black (with no CMY) in the destination profile. Note that the general level of black may change slightly due to dot gain.
- Single Color Black: this combines the advantages of No Black Mapping and Map Black on Black. The source's black channel is mapped onto the destination's black channel, but this black generation mode puts color first in the rest of the color space. This provides an accurate conversion of CMY+K overprints, as black text, barcodes... stay 100% black.
- Use B2A Tag (only when you select an ICC target profile): this uses the target ICC profile's B2A tag to convert separations. A B2A tag is a part of an ICC profile used to convert data from a device-independent color space into a device-dependent color space.
- Custom: this allows you to define your own custom black generation (see the Color Engine Pilot manual for more information).

### 3.3. Settings for Spot Color Linework

Use this dialog to set conversion options for spot colors.





We recommend you do the following to define your settings:

1. Choose if you want to:
  - “Convert Opaque Inks” or not,
  - “Convert Unregistered Inks” (ink that are not in the Color Engine Pilot database) or not.
2. Choose the  $\Delta E$  Formula you want to use.

**Note:**

By default, the Default  $\Delta E$  Formula you chose in the Color Engine Pilot Preferences is selected.

3. Add a few test inks (to see the effect of the settings and pick the best ones for your inks).
  - Click  to add an ink, and/or type the ink name in the next available row.
  - Click  to open an ink book then drag and drop inks from it.



For each ink that you added, you can see the Color Build values (the percentages of each output ink that will be used) and the  $\Delta E$  at right.

Settings for Spot Color Linework

☐ Stabilize Color Builds






Stabilize Settings...

☐ Convert Opaque Inks

☐ Convert Unregistered Inks


















$\Delta E$  Formula:

CIELAB Delta E (Classic)

Color Builds: +  +  -   

Search:


Find Next

Ink	Name	Ink Book	Conversion Type	 %	 %	 %	 %	 %	 %	 %	$\Delta E$
	PANTONE Green C	▶ PANTONE Colors Coated	▶ Best Match	90.1	0.0	0.0	0.0	0.0	77.6	0.0	11.7
	PANTONE Black C	▶ PANTONE Colors Coated	▶ Best Match	6.6	0.0	35.2	100.0	0.0	0.0	0.0	2.6
	PANTONE Process Yellow C	▶ PANTONE Colors Coated	▶ Best Match	0.0	0.0	100.0	0.0	0.7	0.0	0.0	14.8
	PANTONE Process Magenta C	▶ PANTONE Colors Coated	▶ Best Match	0.0	100.0	0.0	0.0	10.1	0.0	0.0	3.1
	PANTONE Process Cyan C	▶ PANTONE Colors Coated	▶ Best Match	100.0	0.0	0.0	0.0	0.0	5.0	0.0	2.3
	PANTONE Process Black C	▶ PANTONE Colors Coated	▶ Best Match	40.3	19.6	0.0	100.0	0.0	0.0	0.0	6.2
	PANTONE Trans. White C	▶ PANTONE Colors Coated	▶ Best Match	0.0	0.0	1.5	0.0	1.5	0.0	0.0	1.6
	PANTONE Hexachrome Yellow C	▶ PANTONE Colors Coated	▶ Best Match	0.0	0.0	100.0	0.0	4.7	0.0	0.0	11.6
	PANTONE Hexachrome Orange C	▶ PANTONE Colors Coated	▶ Best Match	0.0	0.0	18.4	0.0	94.5	0.0	0.0	1.4
											

The color builds show “Best Match”, as the software calculates the color builds with the lowest possible delta E by default.

- If you wish, you can set “Stabilize Settings” to smooth the appearance of the color builds on print (for example, to get rid of really small dots by eliminating an ink with a very low percentage for a particular color...).

See 3.3.1 Stabilizing the Color Builds on page 22 for details.

- Add the remaining inks to be converted (click  to add complete ink books).

You will see this progress bar while your settings are applied to the ink books you just added.



- If necessary, you can then edit individual color builds by:

- changing some of the inks percentages manually (see 3.3.2 Editing a Color Build Manually on page 25).
- comparing “Best Match” and edited ink percentages and refining color builds (see 3.3.3 Refining a Color Build on page 25).
- keeping some inks always unconverted when using this color strategy (see 3.3.4 Keeping an Ink Unconverted on page 26).

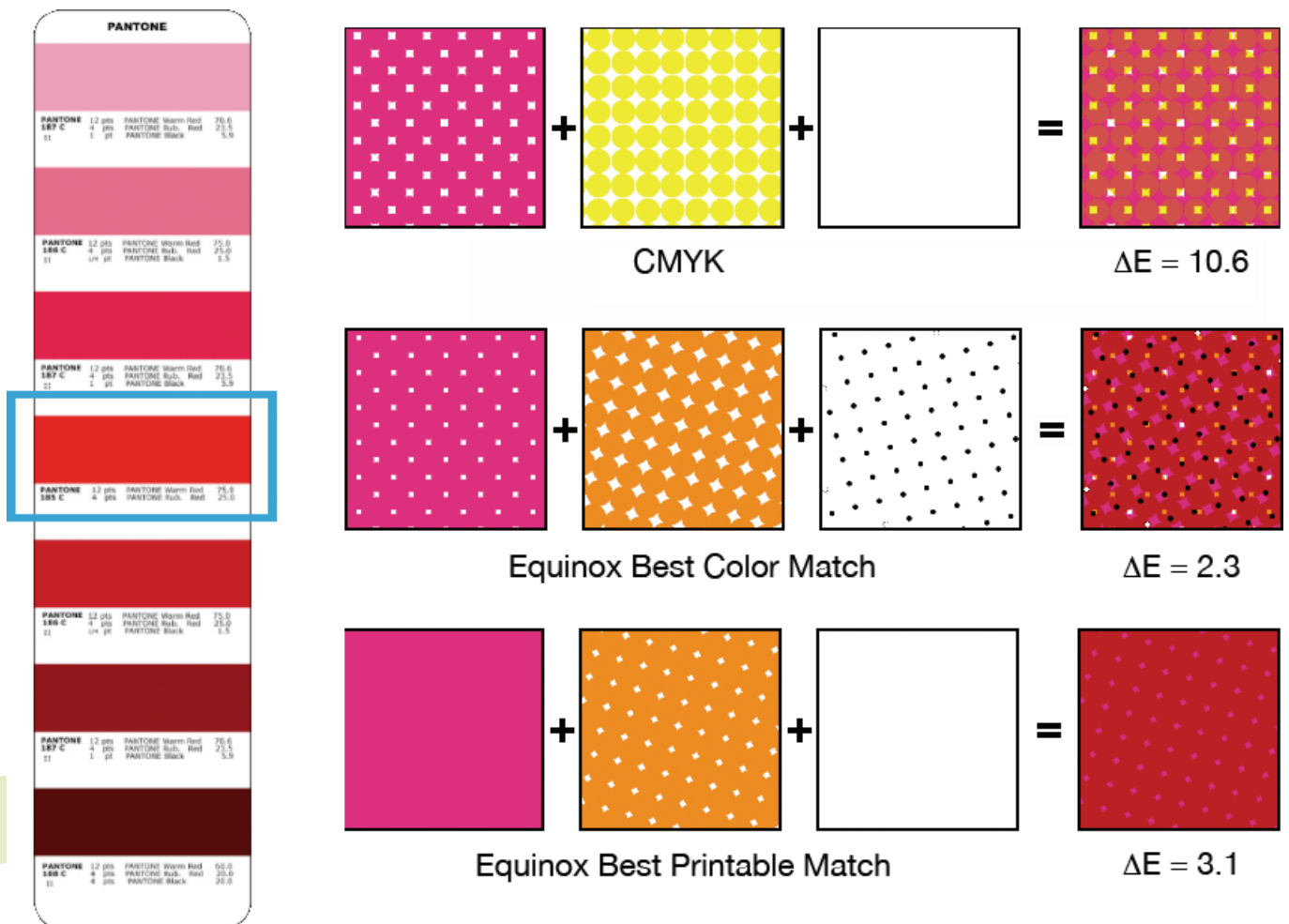
**Note:**

To display the color builds with the highest  $\Delta E$  at the top of the list, click the  $\Delta E$  column twice.

### 3.3.1 Stabilizing the Color Builds

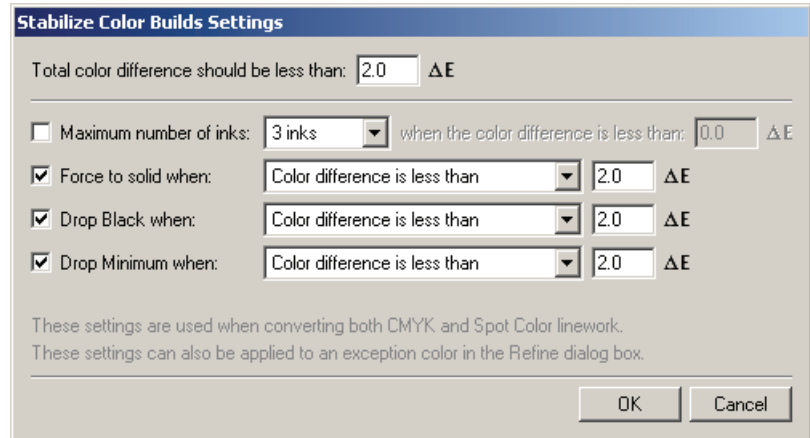
Stabilizing your color builds avoids having separations, or white space, with very few dots. This makes the color appear smoother on press.

The example below illustrates that the most accurate separation conversion might not be the best build for press for a printing process such as flexo: for the spot color on the left, the closest  $\Delta E$  color match ( $\Delta E = 2.3$ ) is not the best printable match ( $\Delta E = 3.1$ ).



- **Using Stabilize Settings**

1. In the Settings for Spot Color Linework dialog, click the “Stabilize Settings...” button to open the Stabilize Color Builds Settings dialog.

The image shows a dialog box titled "Stabilize Color Builds Settings". It has a light gray background and a blue title bar. The main content area contains several settings. At the top, it says "Total color difference should be less than:" followed by a text box containing "2.0" and a label "ΔE". Below this, there are four rows of settings, each with a checkbox and a text box. The first row has a checkbox labeled "Maximum number of inks:" followed by a dropdown menu showing "3 inks" and a text box containing "0.0" with a label "ΔE". The second row has a checked checkbox labeled "Force to solid when:" followed by a dropdown menu showing "Color difference is less than" and a text box containing "2.0" with a label "ΔE". The third row has a checked checkbox labeled "Drop Black when:" followed by a dropdown menu showing "Color difference is less than" and a text box containing "2.0" with a label "ΔE". The fourth row has a checked checkbox labeled "Drop Minimum when:" followed by a dropdown menu showing "Color difference is less than" and a text box containing "2.0" with a label "ΔE". At the bottom of the dialog, there is a small text box containing the text "These settings are used when converting both CMYK and Spot Color linework. These settings can also be applied to an exception color in the Refine dialog box." and two buttons labeled "OK" and "Cancel".

2. Specify your Stabilize Settings (see • Stabilize Settings Details on page 23).
3. Click OK.
4. Back in the Settings for Spot Color Linework dialog, select “Stabilize Color Builds”.

- **Stabilize Settings Details**

- *Total color difference should be less than*

In this field you can set the maximum color difference (in  $\Delta E$ ) between the original color and the color build generated by Equinox. After applying all the stabilize settings, the color difference should be less than the one you specify here.

---

**Note:**

If the software can't apply all of the stabilize settings without going over the Total color difference, it will apply some of the settings, as long as the resulting  $\Delta E$  is within the Color difference defined in these settings and the Total color difference.

---

- *Maximum number of inks*

This option limits the inks used in the color build to 2 or 3.

When using only 2 inks:

- you need to specify a Delta E tolerance,
- you can only use the Force to solid option, not Drop Black or Drop Minimum.

- *Force to solid when*

This option makes the separation with the highest percentage solid (100%), to avoid visible white dots on the print, if either:

- the Color difference (between the original color and the color build) after applying this option is less than the  $\Delta E$  value you enter.
- the highest Ink value is higher than the percentage you enter.

---

**Note:**

This never makes the Black separation solid.

---

- *Drop Black when*

This option sets the Black separation to 0%, to avoid visible black dots on the print, if either:

- the Color difference after applying this option is less than the  $\Delta E$  value you enter.
- the Black Ink value is lower than the percentage you enter.

- *Drop Minimum when*

This option sets the separation with the lowest percentage to 0%, to avoid visible small colored dots on the print, if either:

- the Color difference after applying this option is less than the  $\Delta E$  value you enter.
- the lowest Ink value is lower than the percentage you enter.

---

**Note:**

This never sets the Black separation to 0%. If you wish to do that, use the “Drop Black when” option.

---



---

**Note:**

These settings are applied differently to in-gamut and out-of-gamut colors.

- For in-gamut colors, the settings will only be applied if the resulting Delta E is under the number you specify.
- For out-of-gamut colors, the Delta E tolerance will be loosened gradually as the color gets away from the gamut.

When a color is very far away from the gamut, the stabilize settings will always be applied regardless of the Delta E tolerance (if the stabilize settings are enabled).

---

### 3.3.2 Editing a Color Build Manually

1. Right-click the ink's "Conversion Type" and select "Custom Values".
2. Edit the ink percentages fields as you wish.


The  $\Delta E$  value is updated automatically.

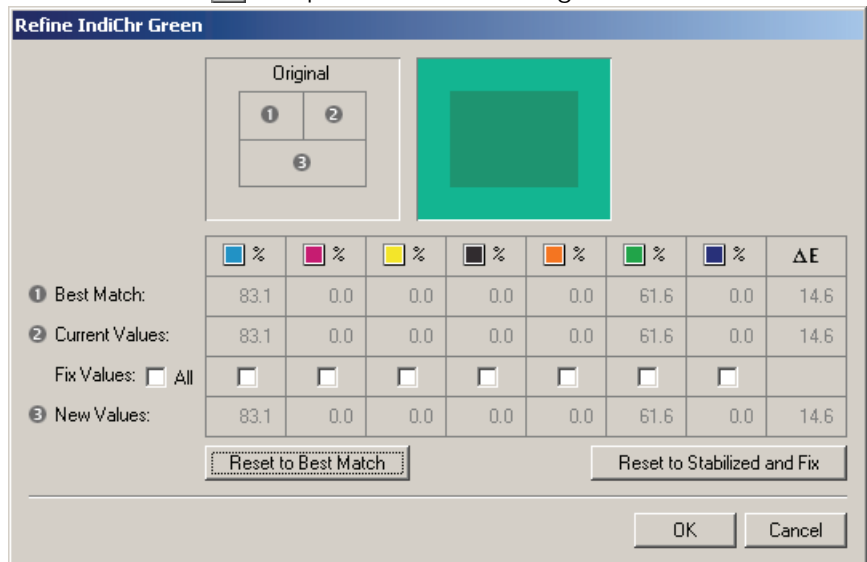
**Note:**

You can't edit color builds that are set to remain unconverted (whose "Conversion Type" column shows "Keep in output").

### 3.3.3 Refining a Color Build

You can refine the color builds by fixing one or more ink value and letting the software recalculate the other ink values accordingly.

1. Select your ink in the Settings for Spot Color Linework dialog and click  to open the Refine dialog.

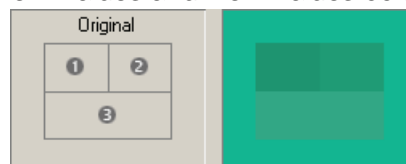


The dialog box titled "Refine IndiChr Green" shows a color build refinement interface. It includes a preview of the original color (a teal square) and a schema of three ink patches (1, 2, and 3). Below the preview is a table with columns for ink percentages (Cyan, Magenta, Yellow, Black, Orange, Green, Blue) and  $\Delta E$ . The table displays three rows: Best Match, Current Values, and New Values. The Best Match and Current Values rows show identical percentages (83.1, 0.0, 0.0, 0.0, 0.0, 61.6, 0.0) and a  $\Delta E$  of 14.6. The New Values row is currently empty. There are checkboxes for "Fix Values" (All, None) and buttons for "Reset to Best Match", "Reset to Stabilized and Fix", "OK", and "Cancel".

	Cyan %	Magenta %	Yellow %	Black %	Orange %	Green %	Blue %	$\Delta E$
1 Best Match:	83.1	0.0	0.0	0.0	0.0	61.6	0.0	14.6
2 Current Values:	83.1	0.0	0.0	0.0	0.0	61.6	0.0	14.6
Fix Values: <input type="checkbox"/> All	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3 New Values:	83.1	0.0	0.0	0.0	0.0	61.6	0.0	14.6

This dialog shows the Best Match color build percentages, the Current Values (which can be for example stabilized or custom values, depending on what you did to the percentages previously), and allows you to set New Values.

The schema at the top of the dialog shows a preview of the Original, Best Match, Current Values and New Values colors.



**Note:**

For best results, your monitor should be calibrated.

2. To change a certain value, select its box in the Fix Values row, then edit it in the New Values row.

You can also fix all the values if you want.

The software will recalculate all the other values to give a new color build.

Current Values:	70.0	0.0	0.0	0.0	0.0	60.0	0.0	15.5
Fix Values: <input type="checkbox"/> All	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
New Values:	55.0	0.0	3.0	0.0	0.0	48.2	0.0	20.8

3. If you are not satisfied with the result, you can either:

- Reset to Best Match,
- Reset to Stabilized and Fix.

**Note:**

This will only reset the build to the stabilized values if it was stabilized. Otherwise it will reset it to the best match values (and fix all the values).

4. When you are satisfied with the result, click OK.

### 3.3.4 Keeping an Ink Unconverted

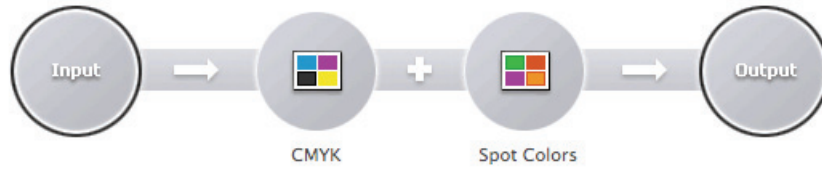
If you don't want to convert a certain ink using your Equinox color strategy, right-click its Conversion Type and select "Keep in output".

## Chapter 4. Equinox in ArtPro

### 4.1. Converting your ArtPro File to CMYKOGB

1. Open the file to convert in ArtPro.
2. Go to Prepress/Equinox to open the Equinox conversion dialog.
3. Define settings for input and output (see 4.2. Settings for Input and Output on page 28).
4. Define settings for CMYK Linework and Images (see 4.3. Settings for CMYK Linework and Images on page 29).
5. Define settings for Spot Color Linework and Images (see 4.4. Settings for Spot Color Linework and Images on page 32).
6. If your file contains complex blend modes, you can flatten it to make sure the colors are converted accurately (with the “Flatten document” option).
7. Click Convert.

## 4.2. Settings for Input and Output



Settings for Input and Output

Output Profile: Any

Color Strategy: Equinox\_CS1

Input Profile: crom\_offs

Ink	Ink Book
Cyan	process
Magenta	process
Yellow	process
Black	process

Save as CMYK ICC Profile...

Output Profile: Equinox\_CMYKOGBFixed

Ink	Ink Book
Cyan	process
Magenta	process
Yellow	process
Black	process
PANTONE Hexachrome Orange C	PANTONE Colors Coated
PANTONE Hexachrome Green C	PANTONE Colors Coated
PANTONE Reflex Blue C	PANTONE Colors Coated

☐ Flatten document

Cancel Convert

1. Select the Output Profile you want to use.
2. The Color Strategy list shows all the color strategies using that output profile. Select the one you want to use.  
The dialog shows the inks contained in your color strategy's input and output profiles.

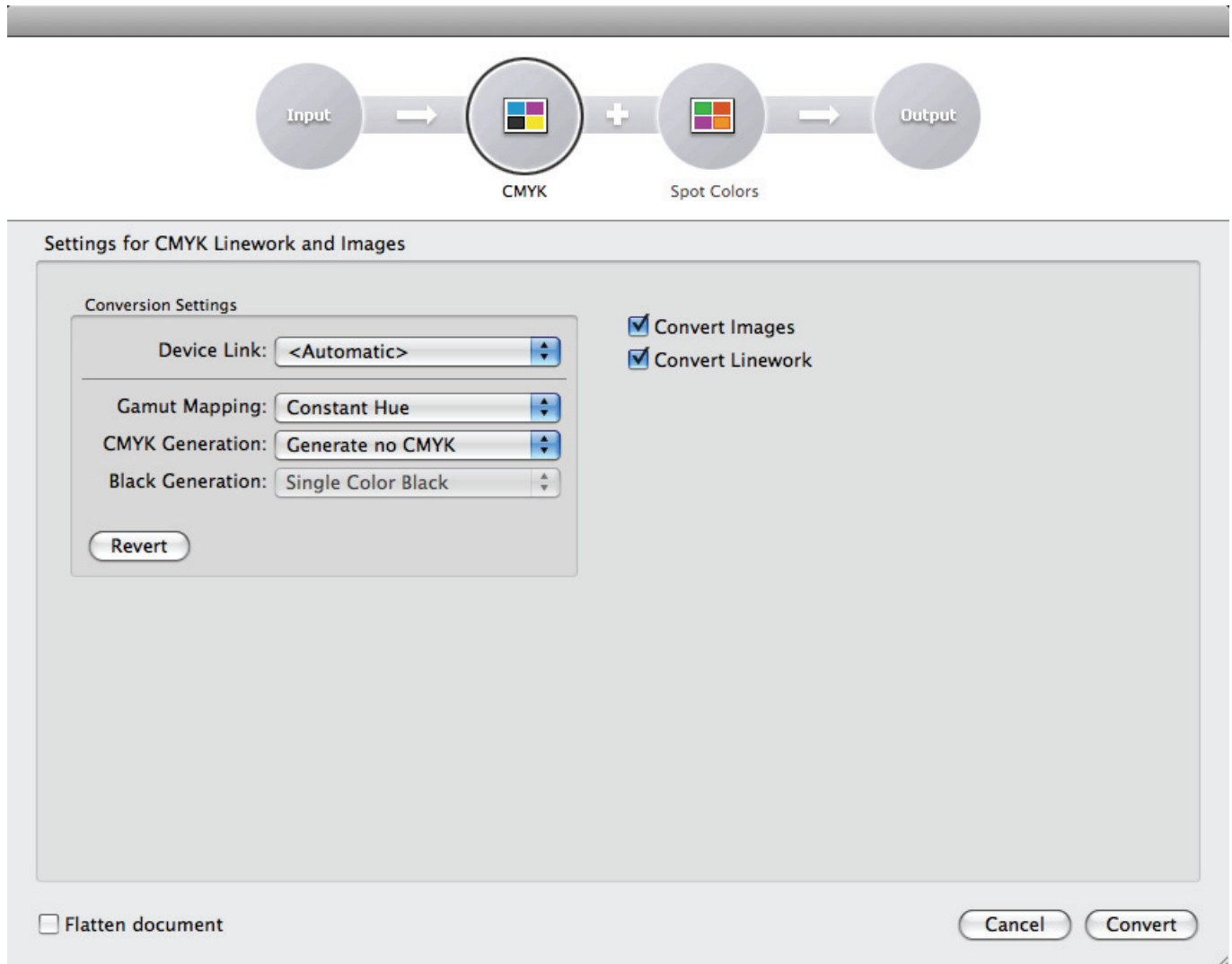
**Note:**

If your color strategy contains an Esko Profile as input profile, you can save it as a CMYK ICC profile, to use as the Working Color Space\* Profile in ArtPro, or to use it in other applications (for example Adobe Photoshop). However, any non-CMYK color information it contains will be lost.



### 4.3. Settings for CMYK Linework and Images

Use these settings to define how to convert CMYK.



1. Select “Convert Images” if you want to convert CMYK images.
2. Select “Convert Linework” if you want to convert CMYK linework.
3. Choose a Color Engine Pilot Device Link, or use the Gamut Mapping, CMYK Generation and Black Generation settings. (see • Conversion Settings on page 30).

---

**Note:** You can use Revert to go back to the default settings.

---

## • Conversion Settings

### • *Device Link*

This list contains all the Color Engine Pilot device links using the selected input and output profiles. Either:

- choose an existing device link in the list (this makes the rest of the settings unavailable).
- choose <Automatic> and create a custom (but limited) device link using the rest of the settings.

---

### **Note:**

The color accuracy is higher when using an existing device link.

---

### • *Gamut Mapping*

Choose either:

- Closest Color: out-of-gamut colors are mapped to the closest color on the border of the destination profile's gamut. The distance is calculated in CIE Lab Delta E 76. This might introduce a hue shift.
- Constant Hue: out-of-gamut colors are mapped to a color on the border of the destination profile's gamut that has the same hue. This option tries to keep the hue when performing gamut mapping.

### • *CMYK Generation*

Use this option to define how to simulate the CMYK of the source profile using the destination profile.

If you are working with an Esko multi-color profile as destination, you can decide whether you want to use the full color gamut (5, 6 or 7 colors) to simulate the source CMYK, or limit the output inks to CMYK.

- Generate no CMYK means you will use the full color gamut.
- Generate only CMYK means that, even though you are specifying a multi-color profile, you would like the CMYK of the source profile to be simulated with CMYK only. Spot colors will still be converted using the full gamut.

### • *Black Generation*

---

### **Note:**

The Black Generation option is only available if you selected the "Generate only CMYK" option.

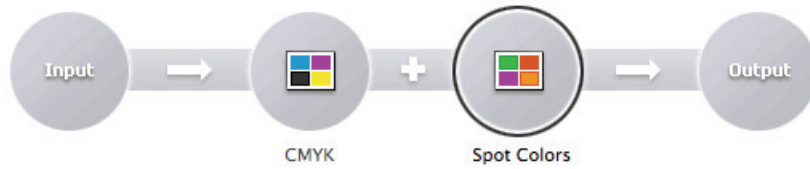
---

Choose a black generation mode.

- **Minimal Black:** this generates the lowest possible amount of black, so black is used only in the shadows.
- **No Black Mapping:** this uses the same amount of black in the target as in the source profile, wherever possible. This keeps the general level of black (e.g. skeleton black), but black objects may contain some CMY after conversion.
- **Map Black on Black:** this converts black separately from CMY, and maps the source black channel onto the destination black channel. This means that objects that are black in the source profile will still be black (with no CMY) in the destination profile. Note that the general level of black may change slightly due to dot gain.
- **Single Color Black:** this combines the advantages of No Black Mapping and Map Black on Black. The source's black channel is mapped onto the destination's black channel, but this black generation mode puts color first in the rest of the color space. This provides an accurate conversion of CMY+K overprints, as black text, barcodes... stay 100% black.
- **Custom:** if you have created custom black generation modes in Color Engine Pilot, you can see them at the bottom of the list. See the Color Engine Pilot manual for information about creating a custom black generation mode.

## 4.4. Settings for Spot Color Linework and Images

Use these settings to define how to convert spot colors.



**Settings for Spot Color Linework and Images**

**Default Conversion Settings**

☐ Stabilize Color Builds      ☐ Convert Opaque Inks      Delta E Formula: **CIELAB ΔE (Classic)**

☐ Convert Unregistered Inks

**Stabilize Settings...**

**Color builds:** **Reapply Conversion Settings**

Ink	Name	Ink Book	Conversion Type	C	M	Y	K	O	G	B	Δ E	Strategy
	PANTONE 430 C	PANTONE Colors Coated	Best Match	8.6	0	0	44.7	0	2.7	0	0	
	PANTONE 109 C	PANTONE Colors Coated	Best Match	0	0	100	0	10.6	0	0	13.8	
	PANTONE Orange 02	PANTONE Colors Coated	Best Match	0	29.8	55.3	0	100	0	0	3.5	✓
	PANTONE Warm Red	PANTONE Colors Coated	Best Match	0	68.2	0	0	94.9	0	0	5.3	✓
	PANTONE 186 C	PANTONE Colors Coated	Best Match	0	99.2	0	7.5	87.1	0	0	0.1	

**Refine color build...**

**Color Build & Color Strategy**

☐ Flatten document

**Cancel** **Convert**








1. Choose if you want to:
  - “Convert Opaque Inks” or not,
  - “Convert Unregistered Inks” (ink that are not in the Color Engine Pilot database) or not.
2. Choose the Delta E Formula you want to use.
3. If you wish, you can set “Stabilize Settings” to smooth the appearance of the color builds on print (for example, to get rid of really small dots by eliminating an ink with a very low percentage for a particular color...).  
See 4.4.1 Stabilizing the Color Builds on page 33 for details.

4. After changing settings, click the Reapply Conversion Settings button.

You will see a progress bar while the color builds corresponding to your file's spot colors are recalculated.

For each of your file's inks, you can see the Color Build values (the percentages of each output ink that will be used) and the  $\Delta E$  at right.

Color builds:

Ink ▲	Name	Ink Book	Conversion Type	C	M	Y	K	O	G	B	$\Delta E$	State
	PANTONE 430 C	PANTONE Colors Coated	Stabilized	0	0	0	47.6	0	0	0	3.8	
	PANTONE 109 C	PANTONE Colors Coated	Best Match	0	0	100	0	10.6	0	0	13.8	
	PANTONE Orange 021	PANTONE Colors Coated	Best Match	0	29.8	55.3	0	100	0	0	3.5	✓
	PANTONE Warm Red C	PANTONE Colors Coated	Best Match	0	68.2	0	0	94.9	0	0	5.3	✓
	PANTONE 186 C	PANTONE Colors Coated	Stabilized	0	100	0	7.6	87.1	0	0	0.3	
	PANTONE 188 C	PANTONE Colors Coated	Stabilized	0	100	74.3	63.3	0	0	0	0.7	
	PANTONE 246 C	PANTONE Colors Coated	Best Match	0	100	0	0	0	0	29.4	21	

5. If necessary, you can then edit individual color builds by:

- changing some of the inks percentages manually (see 4.4.2 Editing a Color Build Manually on page 36).
- comparing “Best Match” and edited ink percentages and refining color builds (see 4.4.3 Refining a Color Build on page 36).
- keeping some inks always unconverted when using this color strategy (see 4.4.4 Keeping an Ink Unconverted on page 37).

**Note:**

To display the color builds with the highest  $\Delta E$  at the top of the list, click the  $\Delta E$  column twice.

6. If you want, you can store a color build you have edited in the Color Strategy, so that color build is suggested by default the next time you convert this color (see 4.4.5 Adding a Color Build to the Color Strategy on page 37).

#### 4.4.1 Stabilizing the Color Builds

Stabilizing your color builds avoids having separations, or white space, with very few dots. This makes the color appear smoother on press.

For more information, see 3.3.1 Stabilizing the Color Builds on page 22.

### • Using Stabilize Settings

1. In the Settings for Spot Color Linework dialog, click the “Stabilize Settings...” button to open the Stabilize Color Builds Settings dialog.

2. Specify your Stabilize Settings (see • Stabilize Settings Details on page 34).
3. Click OK.
4. Back in the Settings for Spot Color Linework dialog, select “Stabilize Color Builds”.

### • Stabilize Settings Details

#### • *Total color difference should be less than*

In this field you can set the maximum color difference (in  $\Delta E$ ) between the original color and the color build generated by Equinox. After applying all the stabilize settings, the color difference should be less than the one you specify here.

#### **Note:**

This is only applied to the settings using the “Color difference is less than” option (not those using “Ink value is greater than” or “Ink value is less than”).

---

**Note:** If the software can't apply all of the stabilize settings (that use the "Color difference is less than" option) without going over the Total color difference, it will apply some of the settings, as long as the resulting  $\Delta E$  is within both the Color difference defined in these settings and the Total color difference.

---

- *Maximum number of inks*  
This option limits the inks used in the color build to 2 or 3.  
When using only 2 inks:
  - you need to specify a Delta E tolerance,
  - you can only use the Force to solid option, not Drop Black or Drop Minimum.
- *Force to solid when*  
This option makes the separation with the highest percentage solid (100%), to avoid visible white dots on the print, if either:
  - the Color difference (between the original color and the color build) after applying this option is less than the  $\Delta E$  value you enter.
  - the highest Ink value is higher than the percentage you enter.

---

**Note:** This never makes the Black separation solid.

---

- *Drop Black when*  
This option sets the Black separation to 0%, to avoid visible black dots on the print, if either:
  - the Color difference after applying this option is less than the  $\Delta E$  value you enter.
  - the Black Ink value is lower than the percentage you enter.
- *Drop Minimum when*  
This option sets the separation with the lowest percentage to 0%, to avoid visible small colored dots on the print, if either:
  - the Color difference after applying this option is less than the  $\Delta E$  value you enter.
  - the lowest Ink value is lower than the percentage you enter.

---

**Note:** This never sets the Black separation to 0%. If you wish to do that, use the “Drop Black when” option.

---

#### 4.4.2 Editing a Color Build Manually

Double-click any ink percentage to edit it manually.

This updates the color build’s  $\Delta E$  value and changes the “Conversion Type” column to “Custom values”.

---

**Note:** You can’t edit color builds that are set to remain unconverted (whose “Conversion Type” column shows “Do not convert”).

---

#### 4.4.3 Refining a Color Build

You can refine the color builds by fixing one or more ink value and letting the software recalculate the other ink values accordingly.

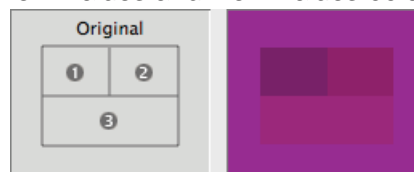
1. Select your ink in the Settings for Spot Color Linework dialog and click the “Refine color build...” button to open the Refine dialog.

	C %	M %	Y %	K %	O %	G %	B %	$\Delta E$
① Best Match:	9.8	100	0	0	0	0	42	25.2
② Current Values:	9.8	100	0	0	0	0	42	25.2
Fix Values:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
③ New Values:	9.8	100	0	0	0	0	42	25.2

This dialog shows the Best Match color build percentages, the Current Values (which can be for example stabilized or custom values, depending on what you did to the percentages previously), and allows you to set New Values.



The schema at the top of the dialog shows a preview of the Original, Best Match, Current Values and New Values colors.



---

**Note:** For best results, your monitor should be calibrated.

---

2. To change a certain value, select its box in the Fix Values row, then edit it in the New Values row.

The software will recalculate all the other values to give a new color build.

3. If you are not satisfied with the result, you can either:
  - Reset to Best Match,
  - Reset to Stabilized.

---

**Note:** This will only reset the build to the stabilized values if it was stabilized. Otherwise it will reset it to the best match values.


---

4. When you are satisfied with the result, click OK.

#### 4.4.4 Keeping an Ink Unconverted

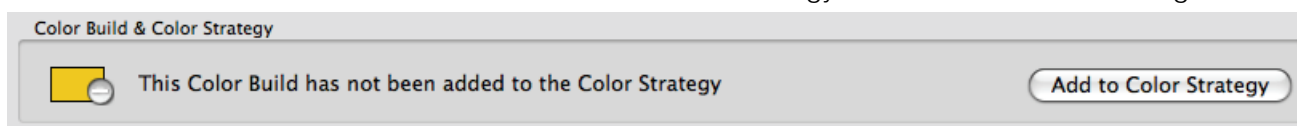
If you don't want to convert a certain ink using your Equinox color strategy, select "Do not convert" in its "Conversion Type" column.


#### 4.4.5 Adding a Color Build to the Color Strategy

Color builds that are already stored in the Color Strategy you are using have a green check .

To store a new color build in the color strategy:

1. Click it in the Color Builds list.  
You will see the message "This Color Build has not been added to the Color Strategy" at the bottom of the dialog.

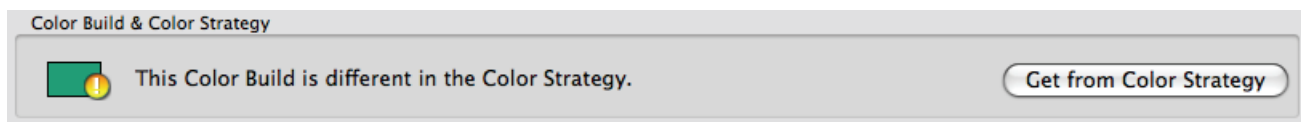


2. Click "Add to Color Strategy".  
The color build now has a grey check  in the Color Builds list.

**Note:**

If you have edited a color build that was stored in the Color Strategy, you will see a yellow warning icon ⚠ beside it.

To revert back to the Color Strategy build, select the build in the list and click “Get from Color Strategy” at the bottom of the dialog.



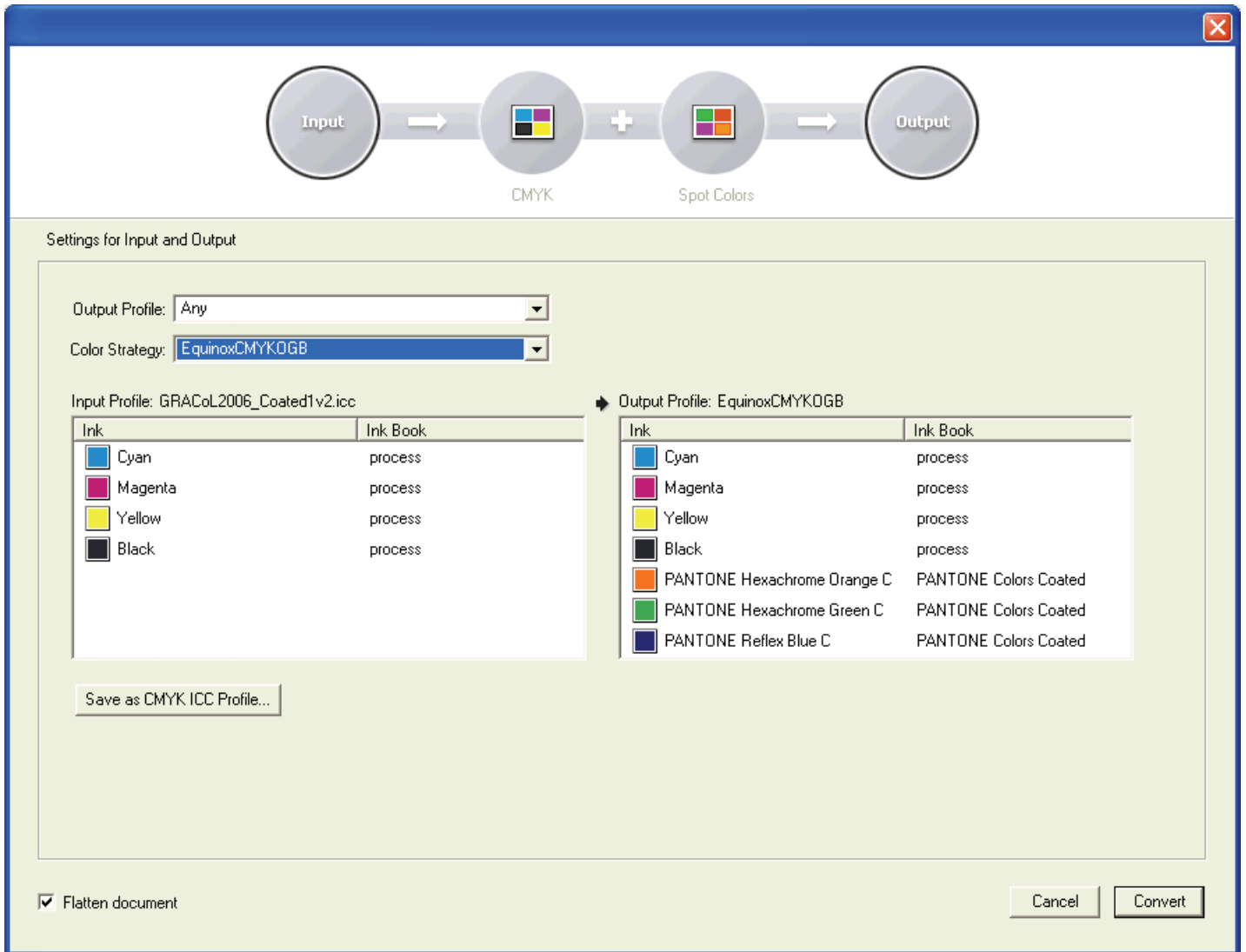
## Chapter 5. Equinox in PackEdge

### 5.1. Converting your File to CMYKOGB

---

1. Open the file to convert in PackEdge.
2. Go to Production/Equinox... to open the Equinox conversion dialog.
3. Define settings for input and output (see 5.2. Settings for Input and Output on page 40).
4. Define settings for CMYK Linework and Images (see 5.3. Settings for CMYK Linework and Images on page 41).
5. Define settings for Spot Color Linework and Images (see 5.4. Settings for Spot Color Linework and Images on page 44).
6. If your file contains complex blend modes, you can flatten it to make sure the colors are converted accurately (with the “Flatten document” option).
7. Click Convert.

## 5.2. Settings for Input and Output



1. Select the Output Profile you want to use.
2. The Color Strategy list shows all the color strategies using that output profile. Select the one you want to use.  
The dialog shows the inks contained in your color strategy's input and output profiles.

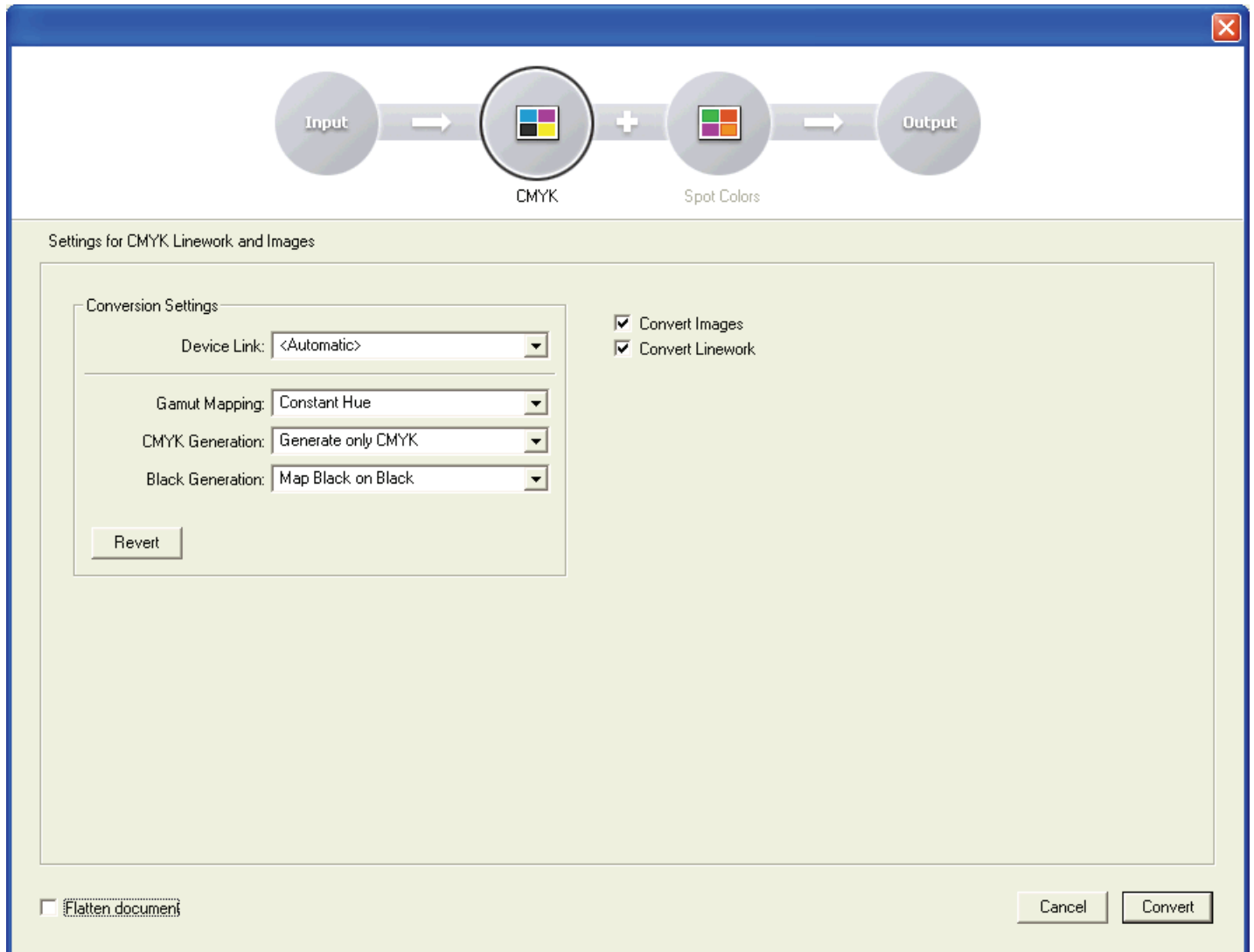
**Note:**

If your color strategy contains an Esko Profile as input profile, you can save it as a CMYK ICC profile, to use in other applications (for example in Adobe Photoshop, or as the Working Color Space\* Profile in ArtPro).

However, any non-CMYK color information it contains will be lost.

### 5.3. Settings for CMYK Linework and Images

Use these settings to define how to convert CMYK.



1. Select “Convert Images” if you want to convert CMYK images.
2. Select “Convert Linework” if you want to convert CMYK linework.
3. Choose a Color Engine Pilot Device Link, or use the Gamut Mapping, CMYK Generation and Black Generation settings. (see • Conversion Settings on page 42).

---

**Note:**

You can use Revert to go back to the default settings.

---

## • Conversion Settings

### • *Device Link*

This list contains all the Color Engine Pilot device links using the selected input and output profiles. Either:

- choose an existing device link in the list (this makes the rest of the settings unavailable).
- choose <Automatic> and create a custom (but limited) device link using the rest of the settings.

### **Note:**

The color accuracy is higher when using an existing device link.

### • *Gamut Mapping*

Choose either:

- Closest Color: out-of-gamut colors are mapped to the closest color on the border of the destination profile's gamut. The distance is calculated in CIE Lab Delta E 76. This might introduce a hue shift.
- Constant Hue: out-of-gamut colors are mapped to a color on the border of the destination profile's gamut that has the same hue. This option tries to keep the hue when performing gamut mapping.

### • *CMYK Generation*

Use this option to define how to simulate the CMYK of the source profile using the destination profile.

If you are working with an Esko multi-color profile as destination, you can decide whether you want to use the full color gamut (5, 6 or 7 colors) to simulate the source CMYK, or limit the output inks to CMYK.

- Generate no CMYK means you will use the full color gamut.
- Generate only CMYK means that, even though you are specifying a multi-color profile, you would like the CMYK of the source profile to be simulated with CMYK only. Spot colors will still be converted using the full gamut.

### • *Black Generation*

### **Note:**

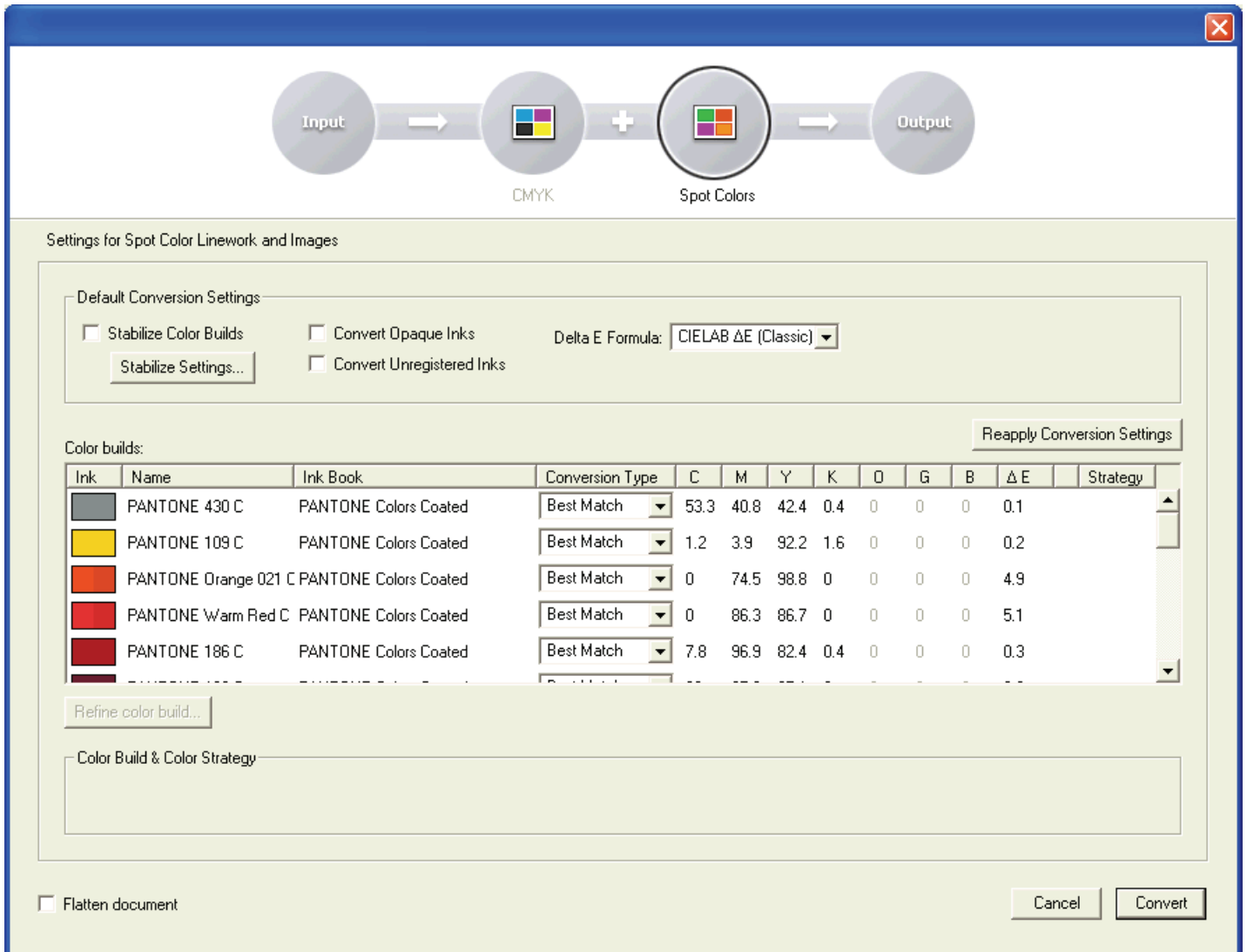
The Black Generation option is only available if you selected the "Generate only CMYK" option.

Choose a black generation mode.

- **Minimal Black:** this generates the lowest possible amount of black, so black is used only in the shadows.
- **No Black Mapping:** this uses the same amount of black in the target as in the source profile, wherever possible. This keeps the general level of black (e.g. skeleton black), but black objects may contain some CMY after conversion.
- **Map Black on Black:** this converts black separately from CMY, and maps the source black channel onto the destination black channel. This means that objects that are black in the source profile will still be black (with no CMY) in the destination profile. Note that the general level of black may change slightly due to dot gain.
- **Single Color Black:** this combines the advantages of No Black Mapping and Map Black on Black. The source's black channel is mapped onto the destination's black channel, but this black generation mode puts color first in the rest of the color space. This provides an accurate conversion of CMY+K overprints, as black text, barcodes... stay 100% black.
- **Custom:** if you have created custom black generation modes in Color Engine Pilot, you can see them at the bottom of the list. See the Color Engine Pilot manual for information about creating a custom black generation mode.

## 5.4. Settings for Spot Color Linework and Images

Use these settings to define how to convert spot colors.








1. Choose if you want to:
  - “Convert Opaque Inks” or not,
  - “Convert Unregistered Inks” (ink that are not in the Color Engine Pilot database) or not.
2. Choose the Delta E Formula you want to use.
3. If you wish, you can set “Stabilize Settings” to smooth the appearance of the color builds on print (for example, to get rid of really small dots by eliminating an ink with a very low percentage for a particular color...).  
See 5.4.1 Stabilizing the Color Builds on page 45 for details.



4. After changing settings, click the Reapply Conversion Settings button.

You will see a progress bar while the color builds corresponding to your file's spot colors are recalculated.

For each of your file's inks, you can see the Color Build values (the percentages of each output ink that will be used) and the  $\Delta E$  at right.

Ink	Name	Ink Book	Conversion Type	C	M	Y	K	O	G	B	$\Delta E$	Strategy
	PANTONE 430 C	PANTONE Colors Coated	Stabilized	53.6	40.9	42.5	0	0	0	0	0	
	PANTONE 109 C	PANTONE Colors Coated	Stabilized	2.2	4.9	92.6	0	0	0	0	0.1	
	PANTONE Orange 021 C	PANTONE Colors Coated	Best Match	0	74.5	98.8	0	0	0	0	4.9	
	PANTONE Warm Red C	PANTONE Colors Coated	Best Match	0	86.3	86.7	0	0	0	0	5.1	
	PANTONE 186 C	PANTONE Colors Coated	Stabilized	0	95.7	80.5	10.7	0	0	0	0	

5. If necessary, you can then edit individual color builds by:

- changing some of the inks percentages manually (see 5.4.2 Editing a Color Build Manually on page 48).
- comparing “Best Match” and edited ink percentages and refining color builds (see 5.4.3 Refining a Color Build on page 48).
- keeping some inks always unconverted when using this color strategy (see 5.4.4 Keeping an Ink Unconverted on page 49).

**Note:**

To display the color builds with the highest  $\Delta E$  at the top of the list, click the  $\Delta E$  column twice.

6. If you want, you can store a color build you have edited in the Color Strategy, so that color build is suggested by default the next time you convert this color (see 5.4.5 Adding a Color Build to the Color Strategy on page 49).

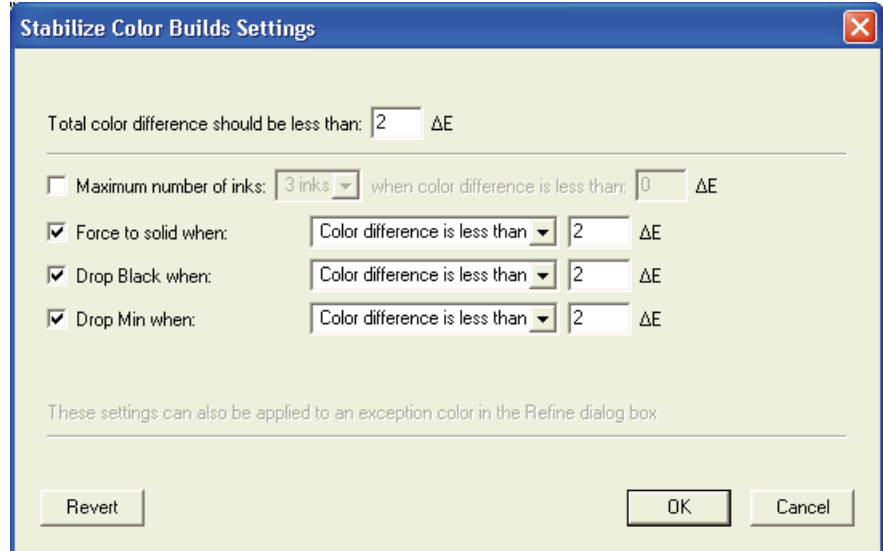
### 5.4.1 Stabilizing the Color Builds

Stabilizing your color builds avoids having separations, or white space, with very few dots. This makes the color appear smoother on press.

For more information, see 3.3.1 Stabilizing the Color Builds on page 22.

### • Using Stabilize Settings

1. In the Settings for Spot Color Linework dialog, click the “Stabilize Settings...” button to open the Stabilize Color Builds Settings dialog.



2. Specify your Stabilize Settings (see • Stabilize Settings Details on page 46).
3. Click OK.
4. Back in the Settings for Spot Color Linework dialog, select “Stabilize Color Builds”.

### • Stabilize Settings Details

#### • *Total color difference should be less than*

In this field you can set the maximum color difference (in  $\Delta E$ ) between the original color and the color build generated by Equinox. After applying all the stabilize settings, the color difference should be less than the one you specify here.

#### **Note:**

This is only applied to the settings using the “Color difference is less than” option (not those using “Ink value is greater than” or “Ink value is less than”).

---

**Note:** If the software can't apply all of the stabilize settings (that use the "Color difference is less than" option) without going over the Total color difference, it will apply some of the settings, as long as the resulting  $\Delta E$  is within both the Color difference defined in these settings and the Total color difference.

---

- *Maximum number of inks*  
This option limits the inks used in the color build to 2 or 3.  
When using only 2 inks:
  - you need to specify a Delta E tolerance,
  - you can only use the Force to solid option, not Drop Black or Drop Minimum.
- *Force to solid when*  
This option makes the separation with the highest percentage solid (100%), to avoid visible white dots on the print, if either:
  - the Color difference (between the original color and the color build) after applying this option is less than the  $\Delta E$  value you enter.
  - the highest Ink value is higher than the percentage you enter.

---

**Note:** This never makes the Black separation solid.

---

- *Drop Black when*  
This option sets the Black separation to 0%, to avoid visible black dots on the print, if either:
  - the Color difference after applying this option is less than the  $\Delta E$  value you enter.
  - the Black Ink value is lower than the percentage you enter.
- *Drop Minimum when*  
This option sets the separation with the lowest percentage to 0%, to avoid visible small colored dots on the print, if either:
  - the Color difference after applying this option is less than the  $\Delta E$  value you enter.
  - the lowest Ink value is lower than the percentage you enter.

**Note:** This never sets the Black separation to 0%. If you wish to do that, use the “Drop Black when” option.

### 5.4.2 Editing a Color Build Manually

Double-click any ink percentage to edit it manually.

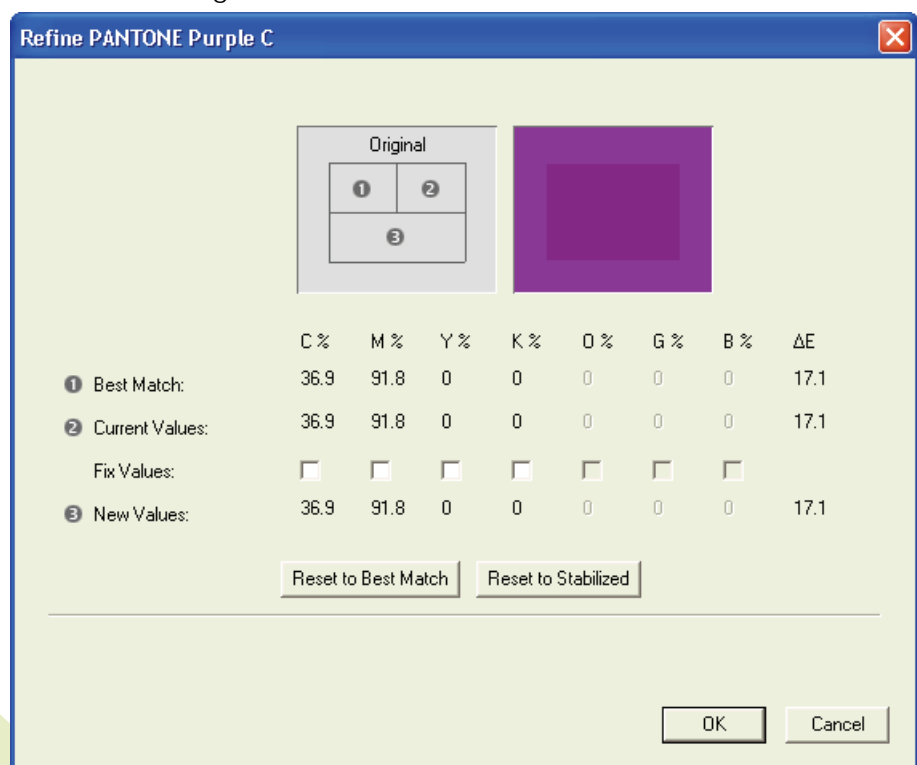
This updates the color build’s  $\Delta E$  value and changes the “Conversion Type” column to “Custom values”.

**Note:** You can’t edit color builds that are set to remain unconverted (whose “Conversion Type” column shows “Do not convert”).

### 5.4.3 Refining a Color Build

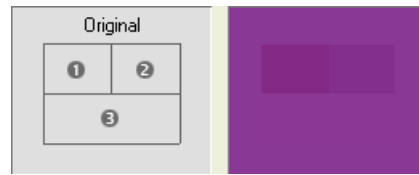
You can refine the color builds by fixing one or more ink value and letting the software recalculate the other ink values accordingly.

1. Select your ink in the Settings for Spot Color Linework dialog and click the “Refine color build...” button to open the Refine dialog.



This dialog shows the Best Match color build percentages, the Current Values (which can be for example stabilized or custom values, depending on what you did to the percentages previously), and allows you to set New Values.

The schema at the top of the dialog shows a preview of the Original, Best Match, Current Values and New Values colors.



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**Note:** For best results, your monitor should be calibrated.

---

2. To change a certain value, select its box in the Fix Values row, then edit it in the New Values row.

The software will recalculate all the other values to give a new color build.

3. If you are not satisfied with the result, you can either:
  - Reset to Best Match,
  - Reset to Stabilized.

---

**Note:** This will only reset the build to the stabilized values if it was stabilized. Otherwise it will reset it to the best match values.

---

4. When you are satisfied with the result, click OK.

#### 5.4.4 Keeping an Ink Unconverted

If you don't want to convert a certain ink using your Equinox color strategy, select "Do not convert" in its "Conversion Type" column.


#### 5.4.5 Adding a Color Build to the Color Strategy

Color builds that are already stored in the Color Strategy you are using have a green check .


To store a new color build in the color strategy:

1. Click it in the Color Builds list.  
You will see the message "This Color Build has not been added to the Color Strategy" at the bottom of the dialog.



2. Click "Add to Color Strategy".  
The color build now has a grey check  in the Color Builds list.

**Note:**

If you have edited a color build that was stored in the Color Strategy, you will see a yellow warning icon  beside it.

To revert back to the Color Strategy build, select the build in the list and click “Get from Color Strategy” at the bottom of the dialog.



## Chapter 6. Equinox Plug-in

The Equinox Photoshop plug-in enables you to convert CMYK or RGB images to CMYKOGB\*.

You can either match or expand the image's gamut.

Matching the gamut allows you to reproduce RGB images on press more accurately (the CMYKOGB gamut\* covers more RGB colors than the CMYK gamut).

Expanding the gamut of CMYK or RGB images using CMYKOGB yields brighter images, containing a wider range of colors.

The options in the Equinox plug-in allow you to control the conversion\* precisely.

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**Note:** To convert an RGB image to CMYKOGB, the image must have an RGB source profile.

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**Note:** Please note that Equinox does not support layers. To convert an image with layers to CMYKOGB, you need to flatten it first.

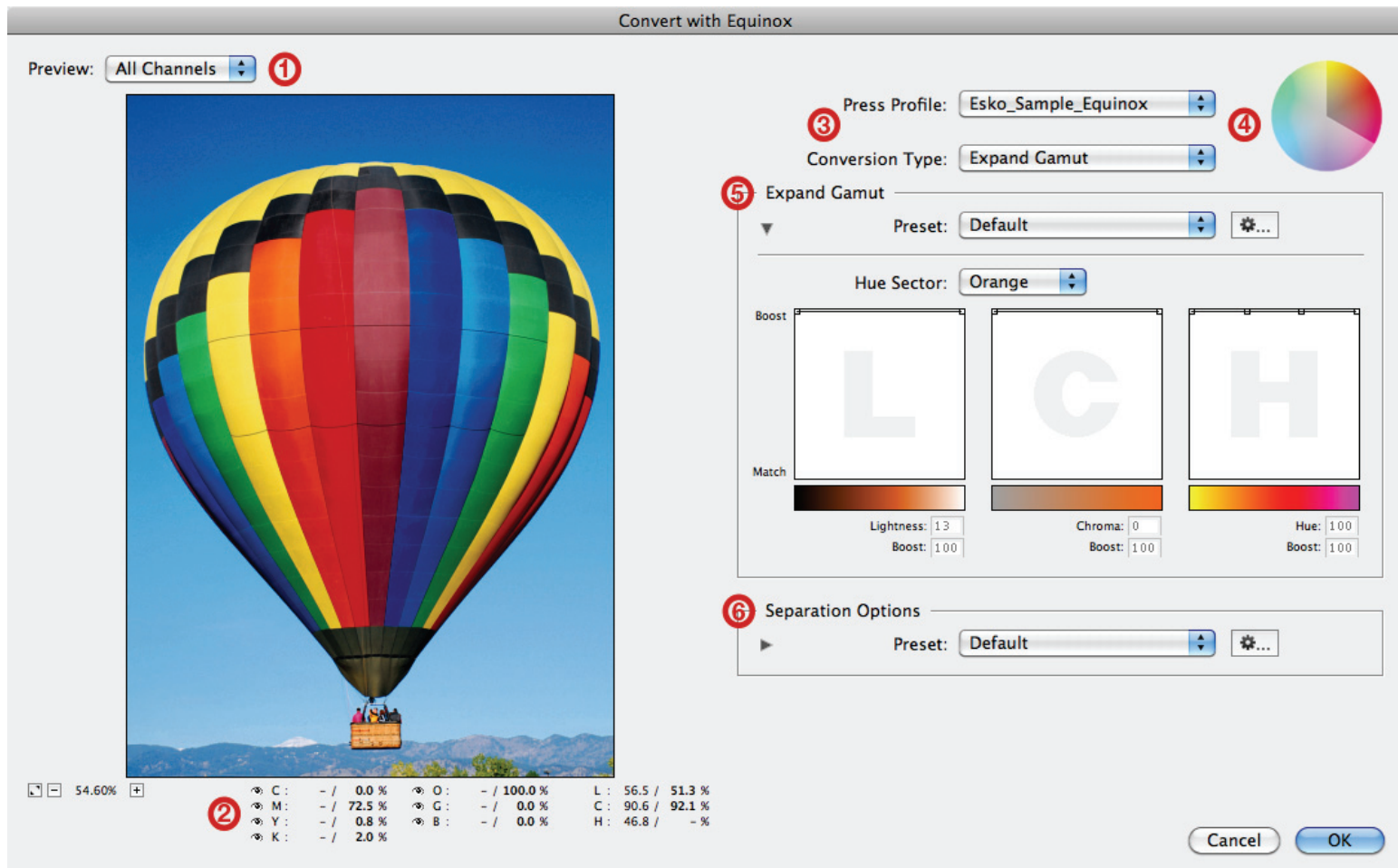
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### 6.1. The Equinox Plug-in in Photoshop

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To use Equinox in Photoshop, go to the File menu, and select Automate/Convert with Equinox...

This opens the “Convert with Equinox” dialog.



The Preview at left shows how the image will look once converted with the settings at right.

You can click the preview to briefly see the original image again.

1. You can preview:
  - all channels,
  - only the CMYK channels,
  - only the OGB channels (to see the added color),
  - each channel individually.
2. You can:
  - zoom in and out of the image,
  - make it fit the preview area using .
  - drag the image to pan it.

The channels visible in the preview have a  icon.

You can see the CMYK, OGB and LCH values of any point of your image as you place your mouse on it.



This shows the original values when applicable (for example original CMYK values of CMYK images but not of RGB images), followed by the converted values.

C : 92.3 / 89.8 %

3. You can choose general conversion settings, such as the Press Profile to use, and whether to expand or simply match your image's gamut.
4. The color wheel\* shows what part of the gamut is being edited: the "Orange" (Magenta-Yellow-Orange-black), "Green" (Cyan-Yellow-Green-black) or "Blue" (Cyan-Magenta-Blue-black) sector when expanding the gamut, or the whole gamut when matching it.
5. You can set Expand Gamut or Match Gamut options in this area (depending on what Conversion Type you chose). See 6.3. Gamut Expansion on page 54 and 6.4. Gamut Matching on page 70.
6. You can set extra options to convert your separations here (black generation, smoothing...). See 6.5. Separation Options on page 71.

## 6.2. Converting an Image to Equinox Colors

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1. Open your image in Photoshop and make sure it is the current image.
2. If your image is RGB, make sure it has a profile.
3. Go to File/Automate/Convert with Equinox... to open the "Convert with Equinox" dialog.
4. Choose the Press profile corresponding to your press.  
The Press Profile menu contains all multicolor profiles (5, 6 or 7 ink profiles containing CMYK inks) defined in Color Engine Pilot. Those profiles can be either Esko or ICC profiles.
5. Choose to either expand or match your image's gamut, and set expansion or matching options.  
See 6.3. Gamut Expansion on page 54 and 6.4. Gamut Matching on page 70.
6. Set Separation Options (see 6.5. Separation Options on page 71).
7. When you are satisfied with the result shown in the Preview, click OK.

**Note:**

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If the result is not satisfactory, you can revert to the original image using the History palette or File/Revert. You can then edit the conversions options as you wish and convert your image again.

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## 6.3. Gamut Expansion

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When expanding your image's gamut with an Equinox conversion, you need to define which parts of the gamut you want to expand.

You can expand the gamut in the "Orange", "Green" and "Blue" Hue Sectors, and within each sector, in the Lightness\*, Chroma\* and Hue\* ranges.

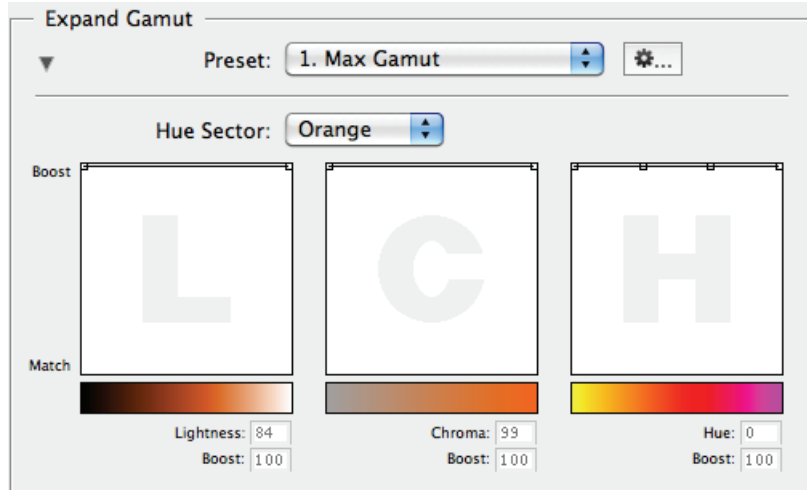
### 6.3.1 Pre-defined Gamut Expansion Presets

The Equinox plug-in comes with eight pre-defined presets for gamut expansion:

- "Max Gamut",
- "High Gamut",
- "Mid Gamut",
- "Normal",
- "Normal Fleshtones",
- "Smooth",
- "Smooth Fleshtones",
- "Subtle".

- **Max Gamut**

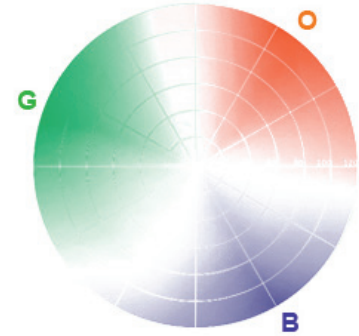
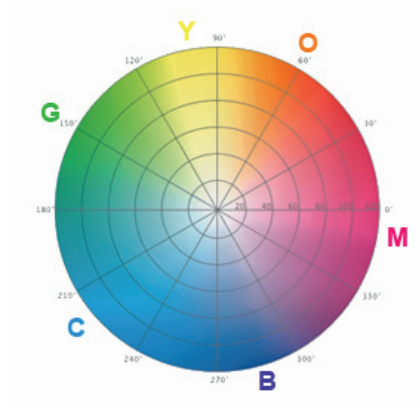
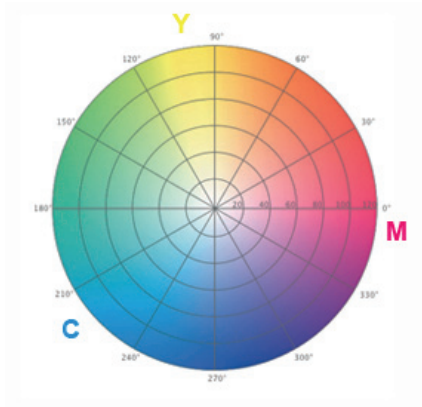
Using this preset expands your image's gamut as much as possible. This means that Equinox will generate a maximum of color in all the relevant areas of your image. For example, it will generate a maximum of Orange in the reds and oranges of your image.



For each sector (Orange, Green, and Blue), you can see that each curve is maintained at 100% gamut expansion (the Boost value is 100) throughout the Lightness, Chroma and Hue ranges.

- *Maximum Expansion in Lightness range*  
100% expansion throughout the Lightness range means the Equinox color(s) will be added to all shades of a same color, from the darkest to the lightest.
- *Maximum Expansion in Chroma range*  
100% expansion throughout the Chroma range means the Equinox color(s) will be added to all degrees of saturation of a color, from pure gray to the most saturated form of this color.
- *Maximum Expansion in Hue range*  
100% expansion throughout the Hue range means the Equinox color(s) will be added to all colors of the image.

The pictures below show the result of an Equinox conversion using the “Max Gamut” preset: the color wheel on the left is the original CMYK image, the middle wheel is the resulting CMYKOGB image, and the wheel on the right shows the OGB separations, that Equinox created and added to the original image.



**Note:**

Use the “OGB” preview to view the newly created Orange, Green and Blue separations.

• *Example*

You can see the benefit of the Equinox conversion in the example below: the picture on the left is CMYK, the one on the right has been converted to CMYKOGB using the “Max Gamut” preset.



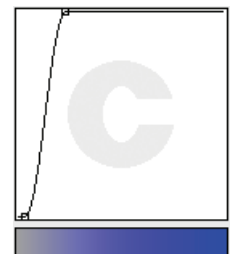
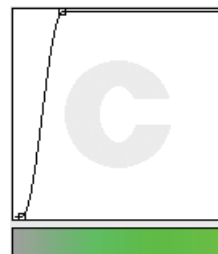
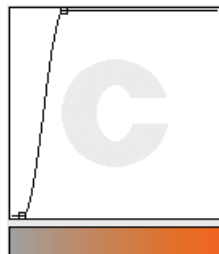
You can see the added OGB separations below. Note that Equinox added the most orange in the saturated red areas, and the most green in the saturated green areas.



- **High Gamut**

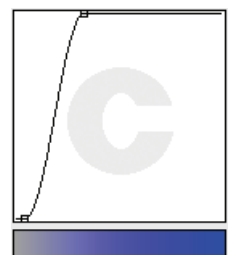
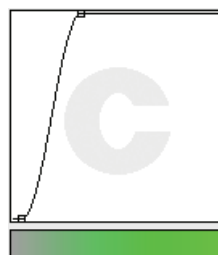
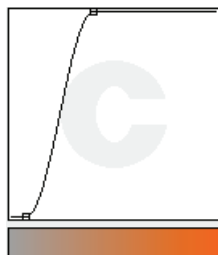
The “High Gamut”, “Mid Gamut” and “Normal” presets generate a maximum expansion of the gamut in all areas except neutrals. They differ in how much they preserve neutrals.

The “High Gamut” preset only keeps pure grays from gamut expansion. You can see this in the Chroma curves: the Boost is 0 for pure grays, and rises sharply to 100 when the grays start turning into colors.



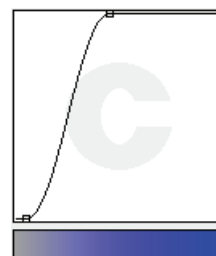
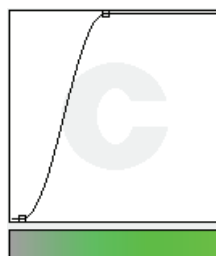
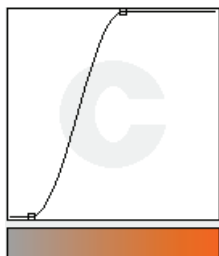
- **Mid Gamut**

The “Mid Gamut” preset keeps most neutral areas from gamut expansion (the curves rise a bit later).



- **Normal**

The “Normal” preset keeps the conversion’s effects out of neutrals altogether, and expands the gamut only when the colors start to be saturated.



- *Example*

You can use this preset to convert an image with both saturated and neutral areas (as the one below) to Equinox colors.

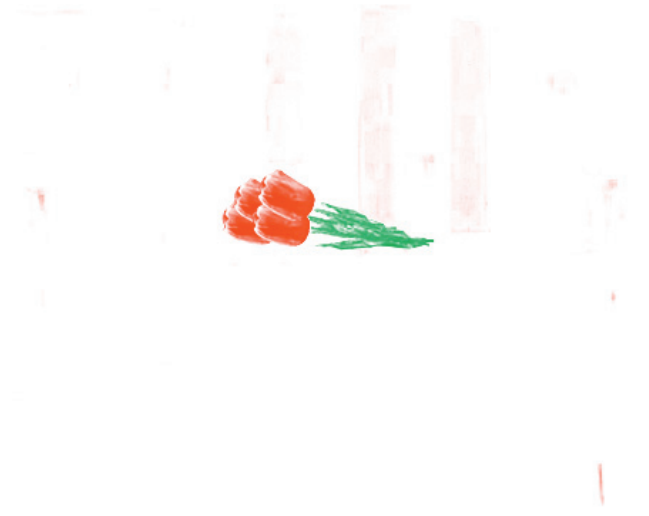




A conversion with a “Max Gamut” Gamut Expansion (left) gives an unnatural orange color to part of the wooden bench. You can see at right that it generates too much orange in the neutral areas.



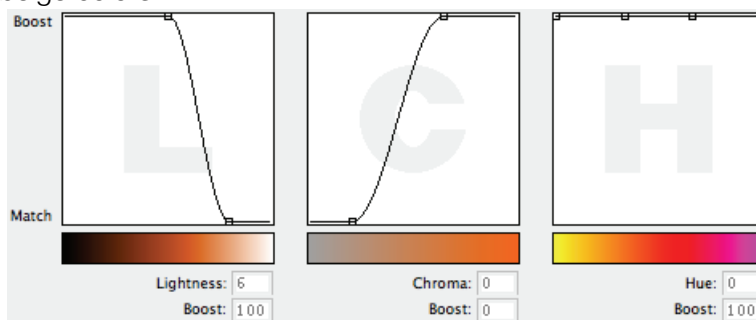
The solution is to choose a preset that leaves out the neutral color, like “Normal”. This gives the bottom left picture as a result, where the tulips are still brighter than in the original image, but where the bench keeps a natural color. This conversion only generates orange in the saturated areas.



- **Normal Fleshtones**

The “Normal Fleshtones” preset limits the creation of Orange in areas with a high lightness and/or a low chroma.

You can use it to convert images containing flesh tones and/or beige colors.



In the Green and Blue Hue Sectors, it expands the gamut the same way the Normal preset does.



- *Example*



For this image, an Equinox conversion with Maximum Gamut Expansion ("Max Gamut") makes the skin tones look too orange.

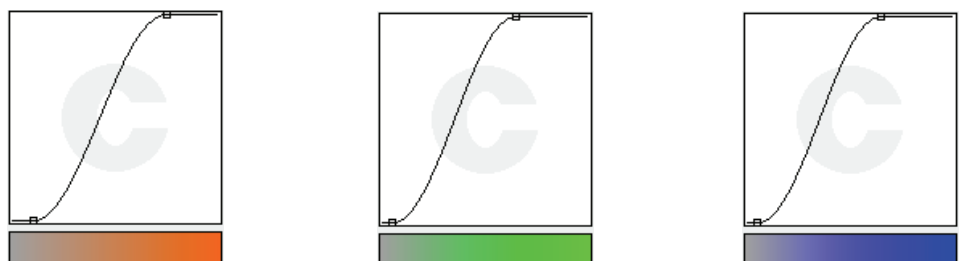


A conversion with the “Normal Fleshtones” preset gives a more natural effect in the skin tones, while still expanding the gamut in the other areas (bright green leafy background).

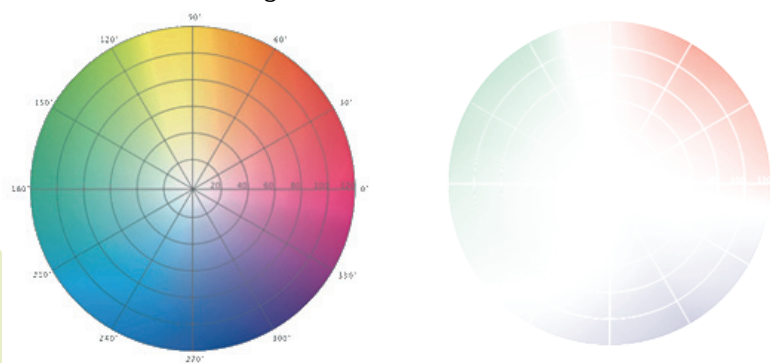


- **Smooth**

The “Smooth” preset expands the gamut gradually into the saturated colors (so more Orange / Green / Blue is added as the color gets deeper).



The Equinox conversion effect is then more subtle, as shown in the CMYKOGB and generated OGB wheels below:





Use this to make the final result subtler than with a Maximum Gamut Expansion ("Max Gamut") conversion.

- *Example*

In the example below, the original CMYK image is a bit dull:



However, an Equinox conversion with "Max Gamut" makes it look more like a colorized picture. The Orange and Blue tones are especially bright, and really different from the original image.

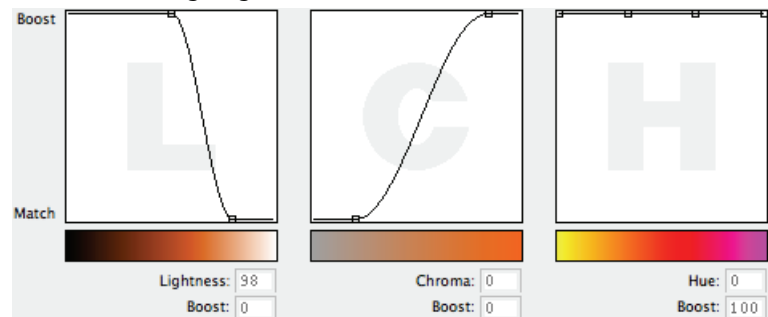


A conversion with the “Smooth” preset adds chroma more gradually into the saturated colors, which gives a more natural effect, as you can see below.

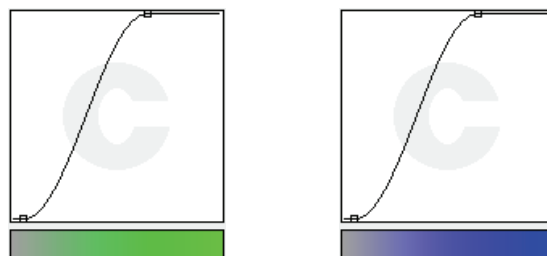


- **Smooth Fleshtones**

The “Smooth Fleshtones” preset limits the creation of Orange in areas with a high lightness and/or a low chroma.



In the Green and Blue Hue Sectors, it expands the gamut more gradually into the saturated colors than the “Normal Fleshtones” preset (it uses the same curves as the “Smooth” preset for those sectors).





Use this preset to convert images containing flesh tones and/or beige colors, and to add chroma gradually into all saturated colors.

- *Example*



For this image, an Equinox conversion with Maximum Gamut Expansion ("Max Gamut") makes the picture too bright and the skin tones too orange.



While a conversion with the “Normal Fleshtones” preset (below) solves the skin tones problem, you may also want to limit the gamut expansion in the other areas (e.g. if the sweaters are too brightly colored).

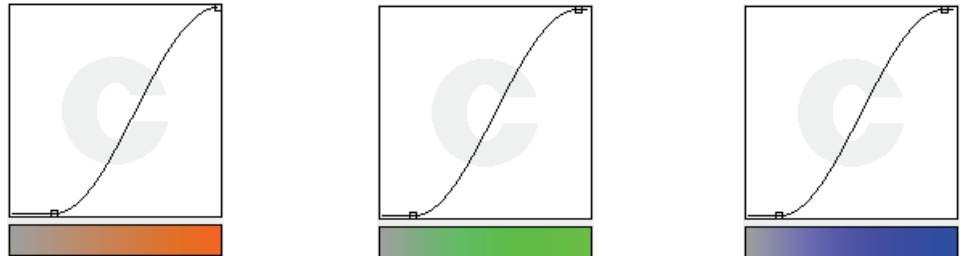


A conversion with the “Smooth Fleshtones” preset limits the gamut expansion in all areas, to keep the image looking natural.



- **Subtle**

The “Subtle” preset expands the gamut very gradually into the saturated colors and preserves neutrals.



Use this if you want a moderate gamut expansion for your images, to prevent them from looking dull but without making them too bright and looking unnatural.

- *Example*

In the example below, the original CMYK image is a bit dull:





However, an Equinox conversion with Maximum Gamut Expansion adds too much chroma, and makes the picture too bright and looking unnatural.



A conversion with the “Subtle” preset gives a more natural effect: it only adds a blush of color to the peaches.

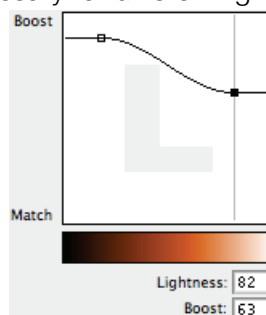


### 6.3.2 Creating a Custom Preset

1. Choose the Orange Hue Sector.




2. Drag the points of the Lightness curve to adjust the gamut expansion as necessary for different lightness levels.



You can also edit the Lightness and Boost values below the curve.


The Preview at left adjusts immediately.

Keep refining the curve until you are satisfied with how your oranges and reds look at different lightness levels.

3. Adjust the Chroma and the Hue curves using the same method.
4. Adjust the Green and Blue Hue Sectors' Lightness, Chroma and Hue curves too.
5. The Expand Gamut Preset list shows Custom. Click  then "Save As..."  
Choose a name and location for your preset and click Save.  
Your Expand Gamut preset is saved as a ".gmt" file.

### 6.3.3 Importing a Custom Preset

If you want to use a preset that you haven't created on this computer (for example a preset saved on another computer within your network, or a preset that a colleague emailed to you):

1. Click  beside the Preset list then click "Load..."
2. Browse to the preset and click Open.


---

**Note:**


You can save that preset on your computer (for ease of use), by clicking  then "Save As..."

---

### 6.3.4 Editing a Custom Preset

1. Select the preset you want to edit in the Preset list (under "Custom"), or import it (see 6.3.3 Importing a Custom Preset on page 69).
2. Adjust the curves as necessary.
3. Click  then "Save As...", and overwrite your preset.

### 6.3.5 Deleting a Custom Preset

1. Click  beside the Preset list.
2. In the “Expand Gamut” pop-up, select the preset to delete and click “Remove”.
3. Click “Yes” in the confirmation message.

**Note:**

You cannot delete pre-defined presets.

## 6.4. Gamut Matching

When matching your image’s gamut, you need to define a rendering intent (to define the way the colors are transformed to the output device’s color space), and decide if you want to use black point compensation or not.

- **Intent**

Select the rendering intent to use when converting CMYK or RGB objects, taking in account the purpose of output (the nature and aim of your graphics, what paper they will be printed on, etc.).

You can choose:

- “Absolute Colorimetric”: this leaves colors that fall inside the destination gamut unchanged.

Absolute Colorimetric is more accurate if the image’s color profile contains correct white point information: it then includes paper simulation and can give an exact color match (for in-gamut colors).

However, Absolute Colorimetric maintains color accuracy at the expense of preserving relationships between colors: when converting to a smaller gamut, two colors that are different in the source gamut may be converted to the same color in the destination gamut.

- “Relative Colorimetric”: this rendering intent is similar to Absolute Colorimetric, except in its treatment of the white point.

Relative Colorimetric maps the white point to the destination paper’s white (so no ink is used when printing white).

Relative Colorimetric is a good choice for photographic imagery, because it preserves color relationships without sacrificing color accuracy.

- **Black Point Compensation**

Use Black Point Compensation to preserve details in the shadows when converting RGB images to Equinox colors.

Without Black Point Compensation, several out-of-gamut dark RGB colors may be converted to the same color, resulting in a loss of detail.

Black Point Compensation preserves the relationship between those dark colors in the converted image, resulting in more detail in the shadows.

## 6.5. Separation Options

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Separation Options allow you to set Gray Component Replacement\*, Smoothing, and color balance options.

### 6.5.1 Pre-defined Presets

The Equinox plug-in comes with two pre-defined separation options presets: “Maximum Black” and “Preserve Black”.

- **Maximum Black**

This preset:

- ignores the CMYK profile embedded in your original image,
- uses a “Maximum Black” Black Generation,
- uses a Smoothing value of 40.

- **Preserve Black**

This preset:


- ignores the CMYK profile embedded in your original image,
- uses a “Map Black on Blacks” Black Generation,
- uses a Smoothing value of 40.

For more information, see • Black Generation on page 73 and • Smoothing on page 72.

### 6.5.2 Creating a Custom Preset

1. Choose to use or ignore your image’s CMYK profile (for CMYK images only). See • Source CMYK Profile on page 72 for more information.
2. Enter a Smoothing value (see • Smoothing on page 72).
3. Choose what to prioritize when using this preset: accuracy, speed or smoothness (see • Conversion Priority on page 72).
4. Choose what type of Black Generation to use (see • Black Generation on page 73).
5. If you want to use OGB inks to print your shadows instead of Black inks, select Replace black with OGB.  
You can also adjust the level of shadows in your image using the Mid-point option, and use your press profile’s OGB measurements if available.  
See • Replace black with OGB on page 76.

6. Select Preserve original separations if you want to maintain a certain level of C, M, Y, and /or K in your image.  
See • Preserve original separations on page 78

7. The Separation Options Preset list shows Custom. Click  then “Save As...”  
Choose a name and location for your preset and click Save.  
Your Separation Options preset is saved as a “.spn” file.

#### • Source CMYK Profile

Use this parameter when converting CMYK images that have an embedded source profile.

Choose if you want to use the profile embedded in your original CMYK image for the conversion, or ignore this profile.

#### **Note:**

We recommend you ignore the embedded profile when using “Preserve Black” in Black Generation (as an embedded profile changes the separations -including black- so using it may give unexpected results).

#### • Smoothing

Use this parameter to produce smoother results, especially in vignettes/gradations. This minimizes sharp color transitions when converting images with gradations. We recommend to use the default value of 40 for most images.

#### **Note:**

Smoothing can reduce the color accuracy by a small amount (the accuracy decreases as you increase the smoothing value).

#### • Conversion Priority

Choose what is more important for you during the conversion:

- Use “Accuracy” to convert the colors in the most accurate way.
- Use “Speed” to speed up the conversion for large images (this may result in a small loss of accuracy).
- Use “Smoothness” to get smoother separations. This is less accurate than the “Accuracy” or even the “Speed” option, but may be useful when the profiles are of a lesser quality (for example if it is difficult to take consistent measurements off the press).

---

**Note:** We recommend that you choose “Speed” when trying out an Equinox conversion on large files, and “Accuracy” when converting the files for production.

---

- **Black Generation**

Choose how to handle the black channel and perform GCR\* when converting your image.

This doesn't affect the Orange / Green / Blue generation or the final (composite) image.

---

**Note:** Only “Maximum Black” (full GCR) can be considered **accurate**. The conversion becomes progressively less accurate as you reduce the level of GCR (even if the original image had very little black).

---

In the example below, the conversion of the original CMYK image on the left gives the CMYKOGB image on the right with all Black Generation options.



Black Generation options only affect how much Black and how much C / M / Y are used in the converted image.

- *Maximum Black*

Use “Maximum Black” to perform as much GCR as possible. This maximizes Black and minimizes Cyan, Magenta and Yellow in the converted image.





- *Map Black on Black*

Use “Map Black on Black” to perform less GCR and keep the original image’s level of black in the converted image. The resulting level of Cyan, Magenta and Yellow is higher than when using “Maximum Black”.



- *Minimal Black*

Use “Minimal Black” to perform minimal GCR and get the lightest possible black separation. The resulting level of Cyan, Magenta and Yellow is higher than when using “Maximum Black” or “Map Black on Black”.



- *Custom Black Generation Settings*

If you have defined custom black generation settings in Color Engine Pilot (and you have a “color engine link” license), you will be able to select them here (they will be at the bottom of the “Black Generation” list).

- **Replace black with OGB**

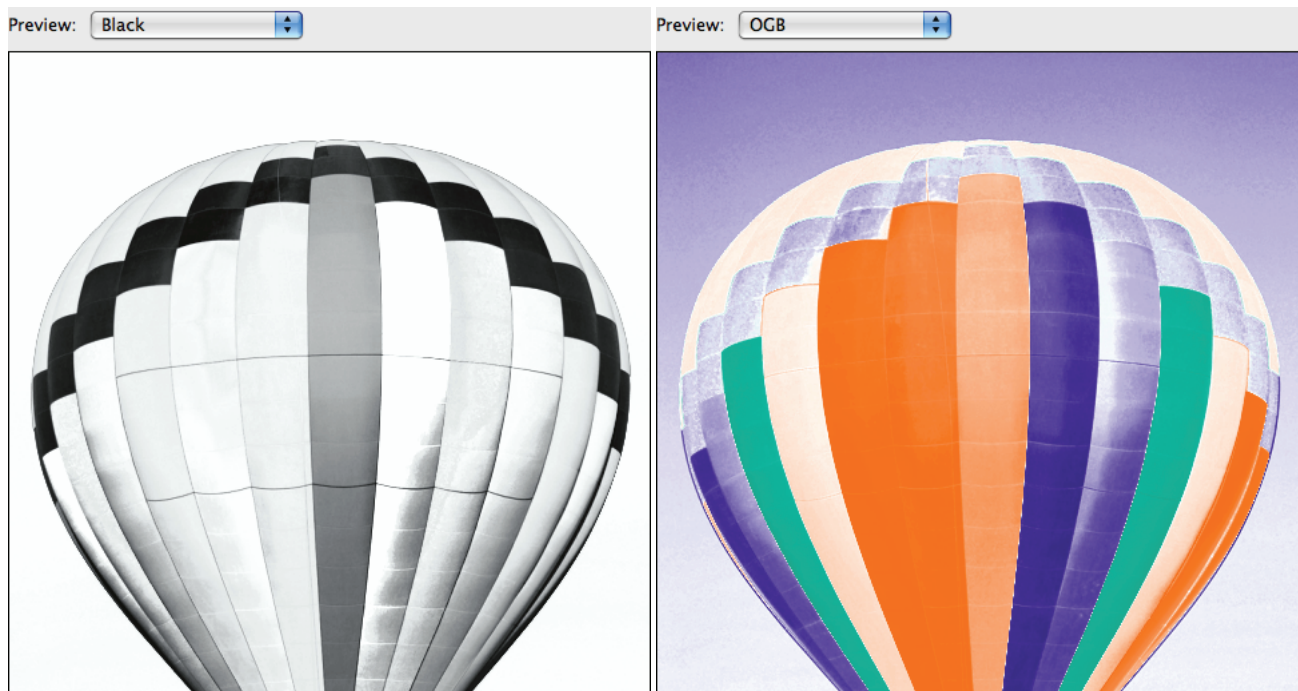
Select “Replace black with OGB” if you want to use OGB inks to print your shadows instead of Black inks.

**Note:**

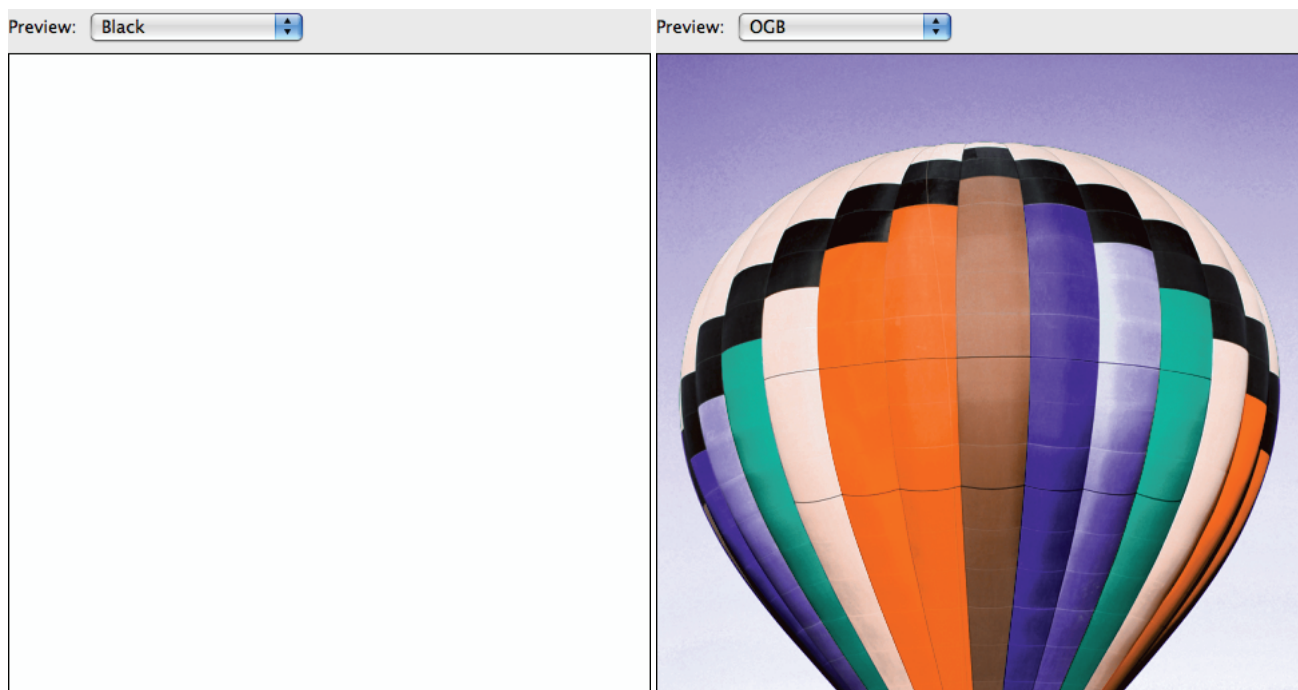
**This is not a color accurate operation** (the preview will not be accurate either).



For example, using Black and OGB inks (option off) will look like this:



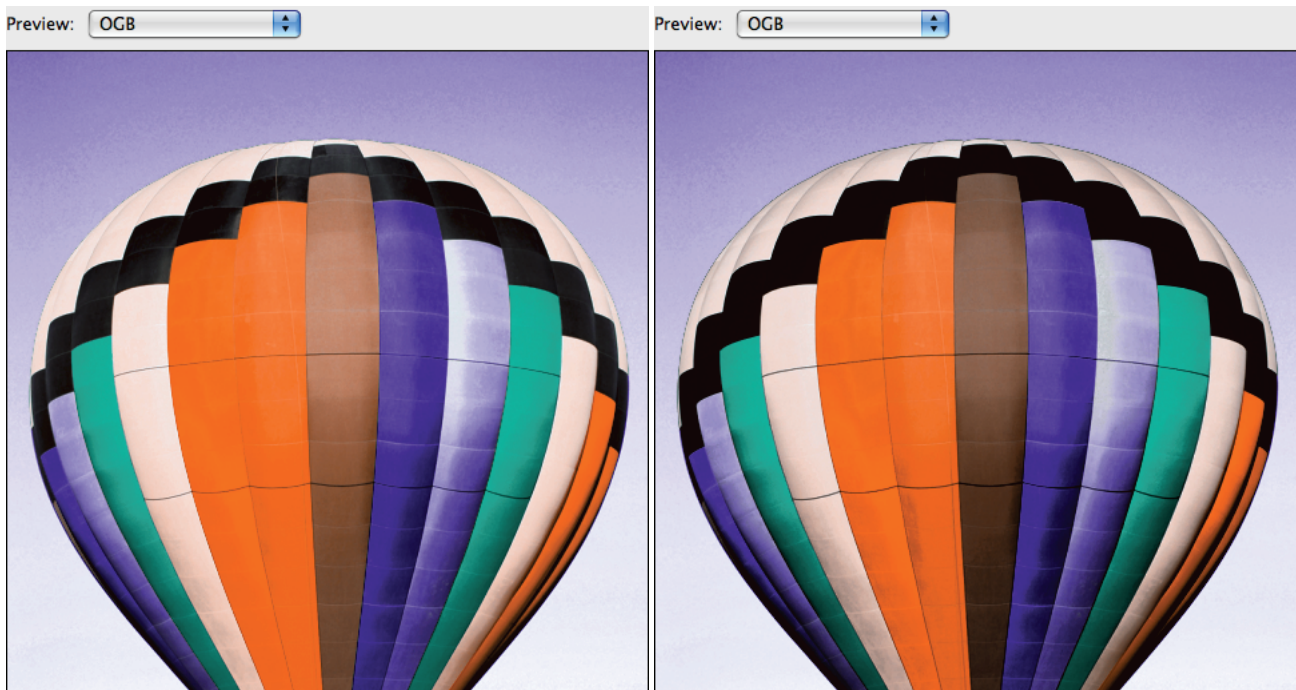
while using OGB and no Black (option on) will look like this:



- *Mid-point*

If you have selected “Replace black with OGB”, you can define a Mid-point to adjust the mid-tones in your image (to avoid the black looking too weak in your converted image).

For example, the default Mid-point (50) gives the image on the left, while an increased Mid-point (75 here) gives the image on the right.



- *OGB Profile*

Choose where you want to get your OGB measurements from when using OGB to print shadows:

- Choose “Use Press Profile if Applicable” to use the OGB measurements in the press profile (if it contains any). If the press profile contains no OGB measurements, the standard OGB calculation will be used.
- Choose “Standard OGB Calculation” to ignore the press profile when replacing black with OGB and use standard OGB measurements instead.

- **Preserve original separations**

Select “Preserve original separations” if you want to restore some or all of the CMY removed (replaced by OGB) during the gamut expansion.

This doesn’t affect the black or OGB levels but simply adds some C, M and / or Y in the areas affected by gamut expansion.

---

**Note:** This option does not give a color accurate result.

---

This option does not restore any CMY replaced by black during Black Generation.

If you want to keep more CMY during Black Generation, you should use a Black Generation setting that is more appropriate to your needs (see • Black Generation on page 73).

If you want to keep your CMYK separations relatively unchanged during the conversion, you can do the following:

1. Set the Black Generation to “Map Black on Black”.
2. Set “Preserve original separations” to 100% for C, M and / or Y.


---

**Note:** When using this option, we advise you to refine the color balance by choosing a lower gamut expansion (for example Mid-Gamut).


---

### 6.5.3 Importing a Custom Preset

If you want to use a preset that you haven’t created on this computer (for example a preset saved on another computer within your network, or a preset that a colleague emailed to you):


1. Click  beside the Preset list then click “Load...”
2. Browse to the preset and click Open.

---


**Note:** You can save that preset on your computer (for ease of use), by clicking  then “Save As...”

---

### 6.5.4 Editing a Custom Preset

1. Select the preset you want to edit in the Preset list (under “Custom”), or import it (see 6.3.3 Importing a Custom Preset on page 69).
2. Adjust the options as necessary.
3. Click  then “Save As...”, and overwrite your preset.

### 6.5.5 Deleting a Custom Preset

1. Click  beside the Preset list.
2. In the “Separation Options” pop-up, select the preset to delete and click “Remove”.
3. Click “Yes” in the confirmation message.

---

**Note:** You cannot delete pre-defined presets.

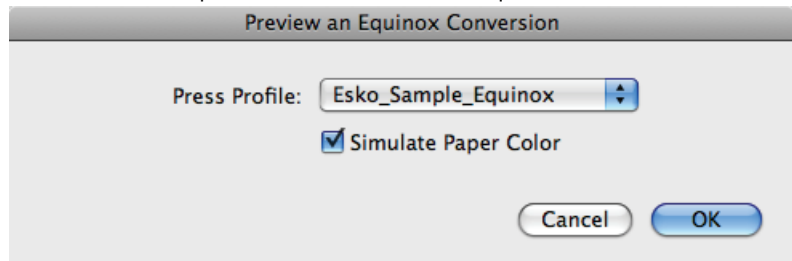
---

## 6.6. The Equinox Preview Conversion plug-in

The display of CMYKOGB images in Photoshop is not color managed.

The Photoshop display can be used to accurately look at a single separation (as a gray scale), and to measure dot percentages in the separation(s). However, due to a limitation of Photoshop, the display of all separations together will not necessarily match the result on press.

To preview the results of your Equinox conversion more accurately, go to the File menu and select “Automate/Preview an Equinox Conversion...”. This opens the “Preview an Equinox Conversion” dialog.



It contains options to simulate converting your image to Equinox colors.

1. Select the Press Profile to use (the one you defined in Color Engine Pilot) in the list.
2. Choose to simulate the paper color or not.
  - Leave Simulate Paper Color disabled to map the press's white/black range (the white point being the paper's color) to the monitor's white/black range. This shows white CMYK areas will as monitor white and black CMYK areas as monitor black, and scales everything in between accordingly.
  - Enable it to simulate the real result of printing on paper.

---

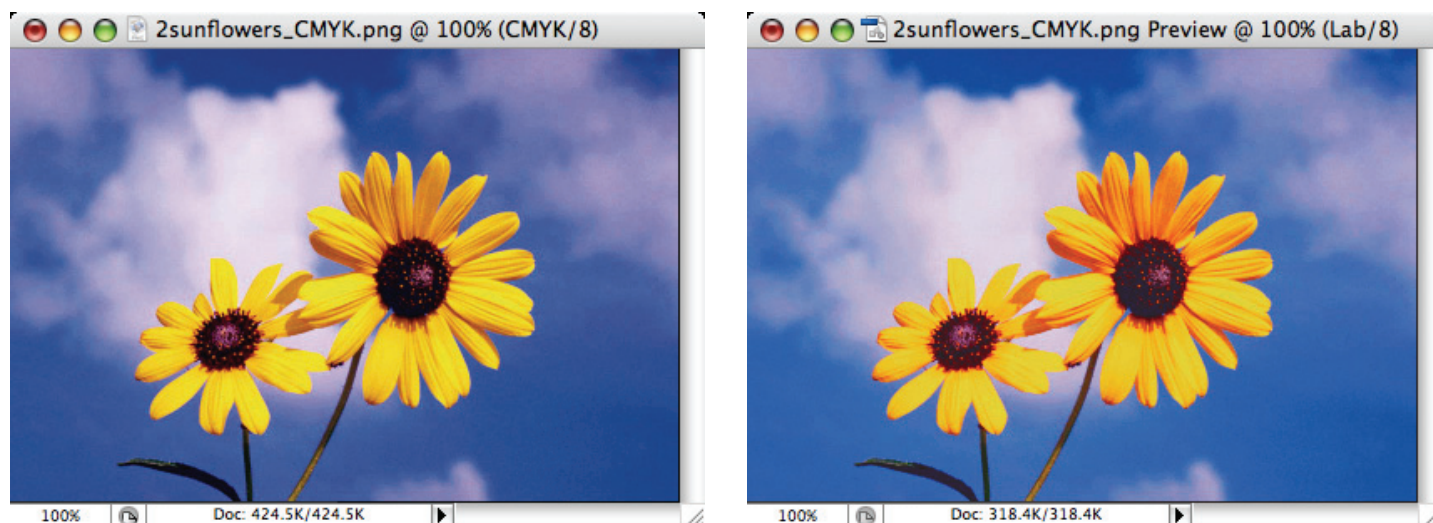
**Note:** Older versions of the Equinox plug-in always simulate the paper color.

---

The Equinox Preview Conversion plug-in generates a LAB Preview file. This file shows your file's colors as they will look after an Equinox conversion with your chosen options.



In the example below, the picture on the left is the original CMYK file, while the picture on the right is the LAB Equinox Conversion preview file.



---

**Note:** The accuracy of the preview depends on your monitor's calibration.

---

## 6.7. Creating an Equinox Device Link

You can create an Equinox device link to convert CMYK images, and use it in other applications with the Equinox functionality. Proceed as follows:

1. Make sure you have the correct setup for using Equinox device links.  
See 6.7.1 Checking Your Setup on page 81.
2. Create an Equinox device link in the Photoshop plug-in.  
See 6.7.2 Creating an Equinox Device Link on page 82.
3. In Color Engine Pilot, use this Equinox device link to create an Equinox color strategy.  
See 3.1. Creating an Equinox Color Strategy on page 16.
4. Use this Equinox color strategy to convert files in ArtPro and / or PackEdge.  
See Chapter 4. Equinox in ArtPro on page 27 and Chapter 5. Equinox in PackEdge on page 39.

### 6.7.1 Checking Your Setup

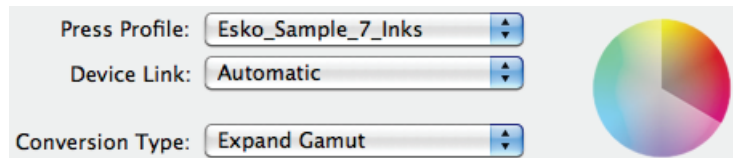
To use this way of working, make sure that:

- you have the Color Engine Pilot 10.1 installed,

- you are linked to the Color Engine Pilot (in the EskoArtwork Set-up plug-in, select “Link to Color Engine” and define where the color settings are).  
See 2.4.2 Setup in the EskoArtwork Setup Plug-in on page 13.

### 6.7.2 Creating an Equinox Device Link

Once your setup is correct, you will see a “Device Link” option in the Convert with Equinox dialog (only when converting a CMYK image).



To create a device link:

1. Choose the Press profile corresponding to your press.
2. Choose to either expand or match your image’s gamut, and set expansion or matching options.  
See 6.3. Gamut Expansion on page 54 and 6.4. Gamut Matching on page 70.
3. Set Separation Options (see 6.5. Separation Options on page 71).

**Note:**

If the image has a CMYK profile, it will be ignored in the Equinox device link, even if you choose “Use Assigned Profile” in the “Source CMYK Profile” option.

4. When you are done, click “Save as Equinox device link...” at the bottom of the dialog.  
Enter a name for your Equinox device link and click OK.  
This saves the device link in your color settings folder.

**Note:**

You can select an Equinox device link you created previously in the “Device Link” list to see its settings in the “Convert with Equinox” dialog, and how it will affect an image you want to convert.

Changing the settings of an Equinox device link shows “Automatic” again in the “Device Link” list.

You can save your changes by clicking “Save as Equinox device link...” and overwriting the device link.

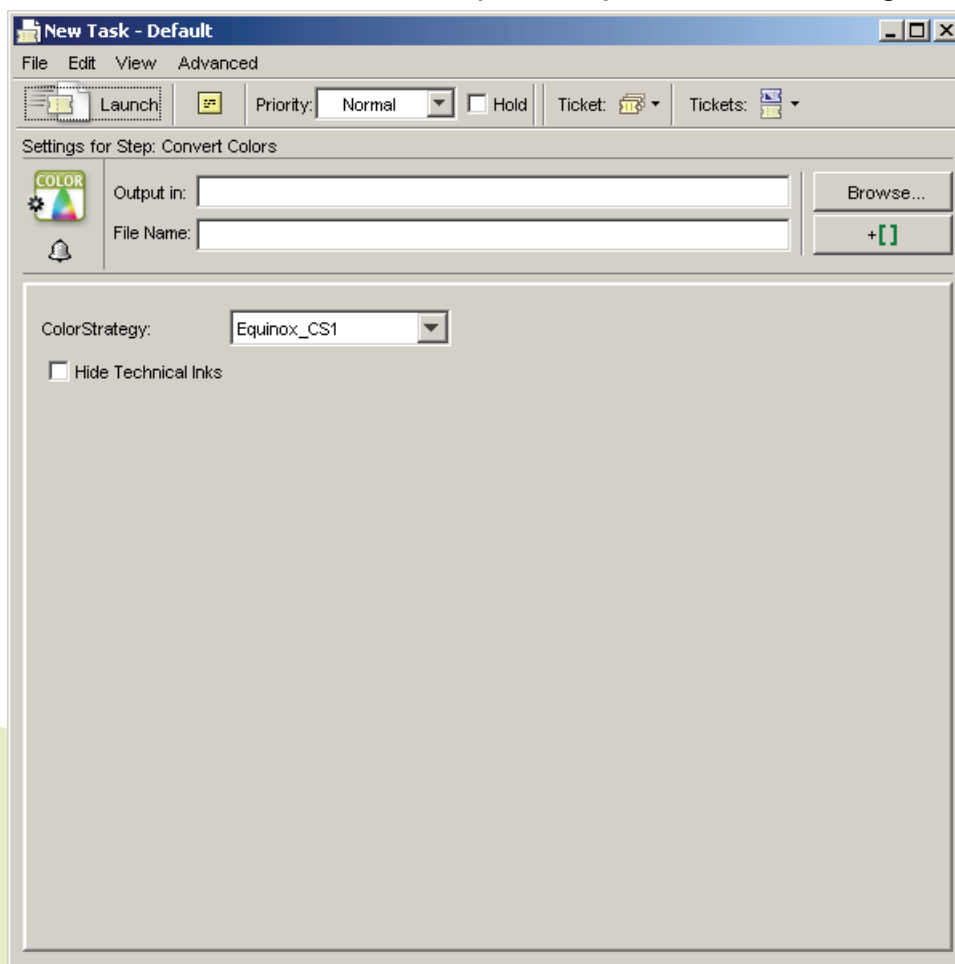


## Chapter 7. Equinox in Automation Engine

Automation Engine's Convert Colors task enables you to automatically convert your files' colors using Equinox.

### 7.1. Using the Convert Colors task

1. In the Automation Engine Pilot, launch the Convert Colors task on your file.
2. In the task ticket, define the output folder and the output file name as you usually do in Automation Engine.



3. The Color Strategy lists contains all of the color strategies defined in Color Engine Pilot. Choose the color strategy you want to use to convert your file.



4. Select Hide Technical Inks if you want to keep technical inks out of the conversion.
5. Click the Launch button.

---

**Note:**

By default, this task flattens all the complex blend modes in your file, to make sure the colors are converted accurately.

---



## Chapter 8. Glossary

- **Best Build for Press**

A Color Build\* generated by Equinox to replace a spot color. Stabilize Settings\* like “Drop Black”, “Drop Minimum” and “Force Solid” mean you can avoid having separations, or white space, with very few dots. This makes the color appear smoother on press.

- **Black Generation**

Black Generation is used when converting an RGB image to the CMYK color space. In theory, equal parts of C, M, and Y should create grays/blacks, but due to printing inks impurities, they tend to produce muddy browns instead.

To compensate for this, a percentage of Cyan, Magenta and Yellow is removed when creating separations, and replaced with a percentage of Black (corresponding to the same theoretical color).

The replacement of Cyan, Magenta and Yellow inks in neutral areas only is called Undercolor Removal (UCR).

The replacement of Cyan, Magenta and Yellow inks in saturated areas as well as in neutral areas is called Gray Component Replacement (GCR).

- **Chroma**

The property of a color that makes it appear saturated, or strongly colored. For example black, white, and gray have no Chroma, pastel colors are low in Chroma, and a vibrant red is high in Chroma.

The Chroma attribute is part of the LCH\* color model.

- **CMYKOGB**

This is the color space used by Equinox. Adding OGB to the CMYK color space expands the Gamut\*, for example giving brighter and more colorful greens and oranges.

Spot colors can be reproduced much more accurately with CMYKOGB than with CMYK matching.

With Equinox, users can choose their own CMYKOGB inks.

- **Color Build**

A color mix generated by Equinox and containing 5, 6 or 7 colors. The Color Build is made of different percentages of the CMYKOGB\* inks (1 or 2 of them being 0% in the case of 6 or 5 colors).

Equinox suggests the closest color match, or the Best Build for Press\*, but the Color Build is still user-editable, to cater for specific cases.

- **Color Wheel**

A representation of all visible colors, arranged in a circle. Complementary colors such as red and green are located directly across from each other, while neutral colors like grays are in the middle.

- **Conversion**

Equinox Conversion of a spot color to CMYKOGB\*: Equinox analyses the Lab Values\* of a spot color, and generates a Color Build\*, made of different percentages of the CMYKOGB\* inks. The suggested Color Build is the closest color match to the spot color but, thanks to Stabilize Settings\*, you can also make it the Best Build for Press\*.

Equinox Conversion of an image to CMYKOGB\*: When processing an image on different devices, each device change reduces the image's Gamut. This is because only the colors at the intersection of the successive devices' Gamuts are kept, while the other colors are mapped to the new Gamut by rendering intents. Equinox expands the image's Gamut, either to make it closer to the original image's Gamut, or to get brighter colors. The Conversion includes various parameters, allowing to get customized results.

- **$\Delta E$**

The measurable difference between two colors, in the Lab\* color space. The higher the  $\Delta E$  is, the more the colors will be visibly different.

The  $\Delta E$  can be calculated with several formulas from the CIE (Commission Internationale de L'Eclairage):

- “ $\Delta E$ ” is the oldest formula, created with the Lab color space in 1976.
- “ $\Delta E 94$ ” and “ $\Delta E$  CMC” are more recent, and take into account differences in color perception (for example, the eye is more sensitive to a small difference between two orange colors than between two green colors).
- “ $\Delta E 2000$ ” is the most recent. It also takes into account differences in Lightness\* perception.

If your company has been using specifically one of those formulas, we recommend that you use the same one. Otherwise, you should use the most recent formula,  $\Delta E$  2000.

- **Gamut**

The range of colors that a device can capture, display or reproduce. Gamuts within the RGB color model usually contain more colors than those within the CMYK color model, but no device Gamut can reproduce all of the colors visible to the human eye. To convert a set of colors from one device's Gamut to another's, ICC Profiles\* are needed.

- **GCR**

Gray Component Replacement is replacing part of a color (made from an addition of Cyan, Magenta and Yellow inks) by a certain amount of Black ink, to get the same color.

- **Hue**

The property of a color identified by its color name, such as "red" or "green".

The Hue attribute is part of the LCH\* color model.

- **ICC Profile**

Color management profiles from the International Color Consortium. They are used to ensure colors stay the same throughout the graphic chain. They take into account a device's characteristics, and influence the way colors are displayed or reproduced on this device, to balance those characteristics, and obtain consistent colors.

- **Lab Values**

Values of a color in the Lab color space. The Lab color space is a theoretical model defined by the Commission Internationale de L'Eclairage (CIE), based on large studies about human vision. It represents all colors visible to the average human eye.

It is a three-dimensional color space, with three axis: "L" (Lightness\*, or black-white axis), "a" (green-red axis) and "b" (blue-yellow axis).

Being device-independent and based on a mathematical definition of colors, it is a reference for measuring colors.

- **LCH**

The LCH color space is a theoretical model based on the Lightness\*, Chroma\* and Hue\* attributes.

As LCH uses the Color Wheel\* to define the Chroma\* and Hue\* attributes, this color space is easier to visualize and more intuitive than the Lab\* color space.

Being device-independent and based on a mathematical definition of colors, it is a reference for measuring colors.

- **Lightness**

The degree of lightness or darkness of a color.

The Lightness attribute is part of the LCH\* color model.

- **Sector Profile**

A Sector Profile is an ICC Profile\* representing a sector of the Color Wheel\*. For example Magenta-Yellow-Orange-black (generally called "Orange") is a Sector Profile.

- **Shared Angle Shift**

When using AM screening, the OGB inks will share screen angles with the CMYK ones. To avoid moiré patterns, Equinox reduces to an absolute minimum the amount of a process ink where the OGB ink sharing its screen angle is present.

- **Stabilize Settings**

Stabilize Settings avoid having separations, or white space, with very few dots. This makes the color appear smoother on press. They include "Drop Black", which drops the black ink to 0%, "Drop Minimum", which drops the ink with the lowest percentage to 0%, and "Force Solid", which increases the ink with the highest percentage to 100%.

- **Working Color Space**

A Working Color Space is a CMYK or RGB ICC Profile\*, assigned to a particular application/device, that defines the way it displays or outputs colors.

In ArtPro, the Working Color Spaces define how the Equinox Color Builds are displayed on the monitor, and output to a proofer.